GOVERNMENT OF MADRAS

ADMINISTRATION REPORT

OF THE

ELECTRICITY DEPARTMENT
FOR 1946-47

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95	47	28	Rs. 0·8	Rs. 0·81
158	64	29	Madsas	Madras

Paragraph 16-*A*.—*For* the existing paragraph *substitute* the following :—

" 16-A. *Madras Grid map (frontispiece)*.—The Grid map has recently been revised bringing it up to date and incorporating therein the latest intentions of the department as to future development. The map serves as frontispiece to this report."

house was completed and after satisfactory acceptance tests was taken over for commercial operation on 28th October 1946.

(3) The Kurnool Electrical Undertaking was taken over by Government at the request of the Municipal authorities on 1st October 1946 and is being operated by the department ever since.

(4) Bulk supply of hydro-electric power from the Pykara System was given to Calicut licensee from 10th April 1946. Similar supply was extended to the Cannanore-Tellicherry licensee from 22nd May 1947. Thus two more licensees ceased self-generation and were connected up to the Madras Grid.

(5) Bulk supply to the Government of Travancore from the Papanasam System commenced from 11th September 1946.

(6) Electric supply was extended to 101 more villages during the ytar.

APPENDIX D.

LIST OF ILLUSTRATIONS.

CHART.

ADMINISTRATION REPORT OF THE ELECTRICITY DEPARTMENT FOR 1946-47.

SECTION I—GENERAL REVIEW.

1. *Introductory.*—The progress of the department during 1946–47 was, in eneral, satisfactory. The year marks the commencement of a large number f development schemes after a period of stagnation caused by the war.

(1) The following major schemes were sanctioned :—

(*a*) The Machkund Hydro-Electric Scheme to be developed jointly ith the Orissa Government. The Madras share of the expenditure is estiated at Rs. 420·11 lakhs initially rising to Rs. 587·6 lakhs in the tenth ear of operation.

(*b*) The Pykara III stage and Moyar II stage extensions at an stimated initial cost of Rs. 255;29 lakhs rising to Rs. 413;79 lakhs in the enth year.

(*c*) Acquisition of the Madras Electric Supply Undertaking in August 1947 on the expiry of the licence granted to the Company.

(*d*) Installation of two 2,500 K.W. transportable sets at Basin Bridge, Madras, at an estimated cost of Rs. 29 lakhs.

(*e*) Madura Thermal Scheme at an estimated cost of Rs. 88 lakhs.

(*f*) Ceded Districts Electrification Scheme at an estimated cost of Rs. 50 lakhs in five years.

(*g*) Erode-Trichinopoly-Dalmiapuram 66 K.V. extensions estimated to cost Rs. 39·8 lakhs in eight years.

(*h*) Erode-Salem 66/110 K.V. line extensions estimated to cost Rs. 24·86 lakhs initially rising to Rs. 29·5 lakhs in eight years.

(*i*) Madura-Tirumangalam-Rajapalayam-Tenkasi 66 K.V. extensions, estimated to cost Rs. 26:4 lakhs.

(*j*) Conjeeveram-Chingleput-Arkonam extensions, estimated to cost Rs. 16·7 lakhs initially rising to Rs. 19·10 lakhs in eight years.

(*k*) Kurnool Distribution Scheme estimated to cost Rs. 11·1 lakhs.

(*l*) Hindupur Distribution Scheme at an estimated cost of Rs. 4·92 lakhs rising to Rs. 9;75 lakhs in ten years.

(*m*) Kollegal Distribution Scheme estimated to cost Rs. 1·705 lakhs initially rising to Rs. 3·5 lakhs in five years.

(2) The erection of tht fourth 12,500 K.V.A. unit at the Mettur powerhouse was completed and after satisfactory acceptance tests was taken over for commercial operation on 28th October 1946.

(3) The Kurnool Electrical Undertaking was taken over by Government at the request of the Municipal authorities on 1st October 1946 and is being operated by the department ever since.

(4) Bulk supply of hydro-electric power from the Pykara System was given to Calicut licensee from 10th April 1946. Similar supply was extended to the Cannanore-Tellicherry licensee from 22nd May 1947. Thus two more licensees ceased self-generation and were connected up to the Madras Grid.

(5) Bulk supply to the Government of Travancore from the Papanasam System commenced from 11th September 1946.

(6) Electric supply was extended to 101 more villages during the year.

(7) The gross revenue during the year from the departmental undertakings was Rs. 124·95 lakhs registering a rise of 7·3 per cent over the previous year.

2. *Load development.*—Additions to loads during the year were confined generally to agricultural pump-sets and small industries.

The aggregate of power demands on the Government power systems was 71,683 K.W. and the units generated totalled 317·65 millions units as shown below against 60,870 K.W. and 327·35 millions units, respectively, last year.

Name of Government system.	Demand in K.W.	Total generation in millions of units.
Hydro-electric—		
Pykara	27,700	145·00
Mettur	23,850	96·24
Papanasam	14,000	56·62
Thermal—		
Vizagapatam	2,140	7·26
Bezwada	3,520	11·23
Cocanada	380	1·25
Kurnool	93	·05
Total ..	71,683	317·65

For the Province, figures for power generation from all sources were as follows :—

	Generation in millions of units.
Government—	
Hydro-electric stations	297·86
Thermal stations	19·79
Licensees—	
Madras Electric Supply Corporation	82·26
Other licensees stations	8·77
Total ..	408·68

The total generation was slightly lower than that during 1945–46 due mainly to lower consumption in industries on account of strikes and lock-outs. This department was responsible for 77;7 per cent of the power output in the Province, the Madras Electric Supply Corporation for 20;15 per cent, and other licensees for the rest.

3. *Financial results.*—The gross revenue earned by Government undertakings during 1946–47 was Rs. 124·95 lakhs as against Rs. 116·44 lakhs last year, representing an increase of 7·3 per cent. Details were as follows :—

Name of Government system.	Year of operation.	Total capital outlay. RS. IN LAKHS.	Gross revenue. RS. IN LAKHS.	Working expenses. RS. IN LAKHS.	Net revenue. RS. IN LAKHS.
Hydro-electric—					
Pykara	Fourteenth.	361·713	111·76	55·03 *	56·73
Mettur	Tenth ..	230·228			
Papanasam	Third ..	184·535			
Thermal—					
Vizagapatam	Eighth ..	32·609	13·19	13·55 †	(—) ·36
Bezwada	Eighth ..	43·151			
Cocanada	Seventh ..	6·248			
Kurnool	First ..	1·122			

* In the case of Papanasam system depreciation contribution was being made only for works transferred from Pykara system.

† Depreciation contribution was being made only in respect of Bezwada Scheme.

The receipts through the inspectorate amounted to Rs. 12·88 lakhs made up of Rs. 9·83 lakhs from the electricity duty, Rs. 0·83 lakh from inspections under the Indian Electricity Act and Rules, and Rs. 2·02 lakhs from penalty for excess consumption of electricity and Rs. 0·20 lakh from use of Government water for generation of electricity.

4. *Number of consumers.*—The total number of consumers served by the electrical undertakings including Government ones, in this Province was 160,871 as on 31st March 1947. Of these, 114,864 were in the area covered by the Government undertakings—25,076 served directly by the Electricity department and 89,788 by licensees distributing Government power. The remaining 46,007 consumers were served by the self-generating licensees. Details are as under :—

Name of system.	Number of consumers. Served by the Electricity department.	Served through distributing licensees in Government area.	Served by other licensees.	Total.
Hydro-electric :—				
Pykara	9,072	15,537	..	24,609
Mettur	8,813	46,721	..	55,534
Papanasam	4,057	17,547	..	21,604
Thermal-electric—				
Vizagapatam	1,250	2,395	..	3,645
Bezwada	821	6,597	..	7,418
Cocanada	477	991	..	1,468
Kurnool	586	..	..	586
Total	25,076	89,788	..	114,864
Madras Electric Supply Corporation	..	..	20,230	
Other licensees	..	..	25,777	
				46,007
			Total ..	160,871

One hundred and one villages were connected up to receive electric supply in the course of the year. The total number of villages and towns having electric supply at the end of the year was 1,104. Of these 511 were served directly by the Electricity department; 537 by licensees distributing Government power and the remaining 56 by the other licensees in the Province. Appendix H (1) and (2) gives the names of the villages and towns.

5. *Transmission lines, sub-stations and distributions.*—The Government transmission and distribution net work included 5,296 miles of lines of which 3,412 miles were of high voltage ranging from 11 K.V. to 110 K.V. and 1,884 miles were of low voltage, distributed as under :—

Name of system.	Number of route miles of lines. H.T.	L.T.
Pykara	1,278	1,064
Mettur	1,390	559
Papanasam	378	137
Andhra	366	124
Total	3,412	1,884

There were 24 numbers 110 and 66 K.V. sub-stations, 24 numbers 33 and 22 K.V. sub-stations and 845 distribution transformer stations with aggregate transformer capacity of 138,350 K.V.A., 15,500 K.V.A. and 42,786 K.V.A., respectively, as follows :—

E.H.T. and H.T. transformer stations.

System.	66 and 110 KV.		22 and 33 KV.	
	Number.	Capacity. K.V.A.	Number.	Capacity. K.V.A.
Pykara	5	70,750	3	2,250
Mettur	14	45,350	10	7,050
Papanasam	5	22,250	3	2,500
Andhra	..	..	8	3,700
Total ..	24	138,350	24	15,500

6. *Agricultural development.*—A large part of the new load connected up during 1946–47 was for agricultural pumping. The position regarding the supply of materials continued to be very difficult and as many pump-sets as possible in the circumstances were given supply. Eight hundred and twenty-two fresh agricultural services were connected up in the Government area and 401 in the licensee areas during the year. The following table gives details of the agricultural services in the different areas :—

Name of the undertaking.	Number of services connected during 1946–47.	Connected load in K.W.	Total number of agricultural services at the end of 1946–47.	Total connected load in K.W. of the agricultural services at the end of 1946–47.
Pykara system	400	1,766	3,293	14,873
Mettur system	286	1,146	1,488	6,018
Papanasam system	79	272	221	751
Vizagapatam system	3	8	12	65
Bezwada syetem	54	171	190	960
Cocanada system	..	..	2	15
	822	3,363	5,206	22,682
Licensees distributing Government power.	393	1,278	1,618	5,587
Total ..	1,215	4,641	6,824	28,269
Other licensees	8	21	36	135
Total in all areas ..	1,223	4,662	6,860	28,404

High priority is given to agricultural services on account of the Grow More Food Campaign. A target of 1,800 pump-set connexions, was aimed at in the Government area but owing to limitations of materials, only 1,287 could be completed. Of these 465 connexions could not actually be brought to use as the consumers had not their pump-sets and fittings ready, owing again to difficulty in securing materials.

The Agricultural department is assisting the agriculturists as far as possible in the speedy procurement of pump-sets, pipes, etc., required by them. The Government have approved the setting up, by the Agricultural department, of a Central Agricultural Engineering Store and Servicing Centre at Madras. The distribution of available pump-sets and fittings will be only to those actually promised power-supply by this department.

Orders for large stocks of poles, conductors, insulators, meters, transformers, etc., were placed last year and this year totalling nearly Rs. 2 crores. A large proportion of them is due for delivery btfore the end of this year

but under the prevailing conditions delay is likely to occur. About half the quantity may perhaps be delivered before the end of 1947 and the balance before the end of 1948. Some insulators may get left over to 1949. An indent has been placed in America through the India Supply Mission for the supply of 40,000 second-hand rails for use as poles. Delivery is promised in September 1947 and if it is kept, the pole position will be eased considerably both in Government and licensees areas.

The rural extension schemes sanctioned and under execution total over rupees one crore and the schemes under investigation may cost another rupees two crores. There has been a phenomenal demand for supply to electric pumping sets for irrigation purposes in all areas. The applications on file number over 12,000. The major cause for this large demand is the scarcity of draught cattle and their prevailing high prices. The high level of crop prices and the comparative prosperity and freedom from worry enjoyed by the farmers already using electricity are also contributory causes. If the public clamour for power is to be met promptly it is essential that the schemes sanctioned and the ones under investigation are completed within at least the next three years, i.e., before the end of 1949. This would be possible only if adequate steel is forthcoming, the delivery of equipment and line materials is as promised and a full compliment of additional staff adequate to handle this enormous programme of work is made available.

The rebate in respect of agricultural consumption sanctioned in June 1946 for licensees receiving bulk supply from this department in hydro-electric areas was extended to thermal areas also, as an incentive to licensees' taking up agricultural load development; but even in the few cases where the licensee is willing to take up such extensions, progress is handicapped for want of line materials and equipment. To meet this situation and to encourage rural development in licensees areas it has been recommended to Government that the policy of this department constructing H.T. lines in licensees' areas on guaranteed revenue basis be revived. The grant of loans to licensees in certain cases has also been recommended.

From the way in which the rural load is increasing it is likely in a few years to outstrip all other loads and assume an importance comparable to that of the industrial load.

7. *Firka Development Scheme*.—During 1946, the Government decided on intensive rural reconstruction in selected firkas, each firka consisting of about 20 to 25 villages. They accordingly selected 25 firkas in the Province, 2 in Agency Tracts, and also 7 khadi centres. This department was required to arrange for the supply of electricity to the firkas. Of the 25 firkas, 14 are in the departmental distribution area and 11 in the areas served by licensed undertakings.

Proposals for supply to places in 6 of the firkas in the departmental area have been sanctioned by Government at an estimated cost of about Rs. 10 lakhs. Further proposals costing about Rs. 8 lakhs have been finalized and are awaiting sanction, while a proposal for supply in the South Kanara area, estimated to cost Rs. 8·67 lakhs initially rising to Rs. 12 lakhs in 5 years is expected to be sent to Government shortly. It is found in some cases that the villages selected are far away from existing power sources rendering the extensions unremunerative according to departmental standards. In such cases, it has been proposed that the deficits should be met from the Firka Development Fund.

Of the 11 firkas in licensees' areas, reports of the licensees and the Chief Electrical Inspector to Government indicate that supply may not be

feasible to any, shortage of materials and/or unremunerativeness being the main factors.

Want of materials is a handicap applicable to the department also and supply to the firka extensions in the departmental area may also be considerably delayed though given priority.

8. *Construction programme.*—Work on the following sanctioned schemes and extensions will be in progress in 1947–48 :—

New projects.

(1) The Machkund Scheme in which are included
 (*a*) Vizagapatam Plant Extensions, and
 (*b*) Bezwada-Rajahmundry-Samalkot Extensions.
(2) The Moyar Scheme.

Plant extensions.

(3) The Pykara III Stage Extensions.

(4) The Papanasam Plant Extensions including the Madura Thermal Scheme.

(5) The Madras Thermal Extensions including the installation of transportable power sets.

Line extensions and distribution schemes.

(6) The Madras-Mettur Interconnexion Scheme.
(7) The Ceded Districts Scheme.
(8) Erode-Trichy-Dalmiapuram 66 K.V. Extensions.
(9) Erode-Salem 66/110 K.V. Extensions.
(10) Madura-Tirumangalam-Rajapalayam-Tenkasi 66 K.V. Extensions.
(11) Conjeeveram-Chingleput-Arkonam Extensions.
(12) Hindupur and Kollegal Distribution Schemes.

Proposals in respect of the following are awaiting the sanction of Government and work on them is also expected to be in progress :—

(1) The Nellore Thermal Scheme.
(2) West Godavari Distribution Scheme.
(3) Tanjore-Mayavaram-Chidambaram Extensions.
(4) Papanasam-Tinnevelly-Kayattar 66 K.V. Extensions.
(5) Villupuram-Pondicherry 66 K.V. Extensions.
(6) Negamam-Pollachi 66 K.V. Extension.
(7) Construction of about 25 miles of H.T. line in West Ramnad Licensee's area.

The position regarding sanctioned schemes is given in the detailed report of the 'Power Development' or 'Operating Systems' branches as the case may be.

9. *Schemes awaiting Government sanction.*—The following are the main features of the proposals awaiting Government sanction :—

(*a*) *The Nellore Thermal Scheme.*—The scheme previously submitted to Government provided for a thermal station at Nayudupet at an estimated cost of Rs. 84 lakhs. In view of certain industrial loads not maturing but other important mining loads arising elsewhere in the district the location of the power-house has been changed to Nellore town and the scheme proposals have been revised. The scheme provides for the installation of two Yarrow—B.T.H. 2,500 K.W. transportable power sets initially and two 1,500 K.W. turbo-sets to be added later. H.T. lines are provided from Nellore

to Gudur and later to Nayudupet, Venkatagiri and Kalahasti and to Kavali. The scheme is estimated to cost Rs. 59·71 lakhs initially rising to Rs. 101 lakhs within 10 years. The turbines of both the 2,500 K.W. transportable sets earmarked for this scheme have already arrived and the boilers are expected to be shipped shortly.

(b) *West Godavari Distribution Scheme.*—This provides for supply to 28 towns and villages in the West Godavari district initially with a load of 1,000 K.W. rising to 2,000 K.W. in the fifth year. Fifty miles of 33 K.V. lint, 16 miles of 11/33 K.V. lint, 9 miles of 11 K.V. line and 28 L.T. distributions are to be built. The scheme is estimated to cost Rs. 29 ;55 lakhs initially rising to Rs. 36·6 lakhs in five years. Supply will be given to the area as soon as the Bezwada-Rajahmundry-Samalkot extensions are completed.

(c) *Tanjore-Mayavaram-Chidambaram extensions.*—The scheme is intended to meet the increasing industrial and agricultural demands in the area, by the construction of a 66 K.V. line from Tanjore to Mayavaram and a 33 K.V. line from Mayavaram to Chidambaram with sub-stations at Kumbakonam, Mayavaram, Chidambaram at an estimated cost of Rs. 24·74 lakhs initially rising to Rs. 27 lakhs in eight years.

(d) *Papanasam-Tinnevelly-Kayattar* 66 *K.V. Extensions.*—This extension is intended to meet the needs of the India Cement Factory who require power to the extent of 2,500 K.W. rising to 4,000 K.W. in 10 years, and the agricultural and other loads in the East Tinnevelly district. The extension is estimated to cost Rs. 17 :67 lakhs initially rising to Rs. 18·17 lakhs in ten years.

(e) *Villupuram-Pondicherry* 66 *K.V. Extensions.*—This is intended to meet the anticipated demand of the French India Government of 3,000–4,000 K.W. in two to three years. The extension is expected to be completed by the time the Moyar Scheme is in operation. It is estimated to cost Rs. 11·25 lakhs initially rising to Rs. 13 lakhs in eight years.

(f) *Negamam-Pollachi* 66 *K.V. Extensions.*—The large load development in the Pollachi-Anamalai area will be met by this extension which provides for a 66 K.V. line from Negamam to Pollachi, 66/22 K.V. substation at Pollachi and a 66 K.V. switching station at Negamam. The load anticipated is 1,500 K.W. in the first year rising to 2,000 K.W. in eight years. The estimated cost is Rs. 16·36 lakhs initially rising to Rs. 21 lakhs in eight years.

(g) *Construction of about* 25 *miles of high-tension lines in West Ramnad Licensee's area.*—This is in pursuance of the policy of revival of departmental construction of H.T. lines in Licensee's areas on guaranteed revenue basis. The extension will enable the West Ramnad Licensee to take up distributions in parts of his area which had been neglected so long.

10. *The Madras Electric Supply Corporation.*—As stated in the report for 1945–46, the Madras Electric Supply Corporation Undertaking would be acquired by Government in August 1947. Anticipating a large increase in demand in the City, extensions to the Basin Bridge Power Station were planned in 1945 providing initially for the installation of one 15,000 K.W. turbo-alternator with boilers and accessories, and for the addition of two more units later. On sanction of this scheme in 1945–46 Messrs. Merz and McLellan were engaged as Consulting Engineers for the first stage of the extensions. Three boilers, 80,000 lb. have been ordered on Messrs. Babcock and Wilcox and one 15,000 per hour K.W. turbo-alternator set has bten ordered on Messrs. English Electric Company. Specifications for switchgear,

transformers and reactors have betn issued and tenders invited. The installation of the 15,000 K.W. set at Basin Bridge may be completed about the end of 1949.

As the Madras Electric Supply Corporation plant was fully loaded and could not take up even domestic loads in addition and as a large number of domestic consumers in the Madras area were being put to considerable inconvenience by not being given service, the Government Emergency Station with 1,500 K.W. capacity at Villivakkam was permitted to be run by the Madras Electric Supply Corporation from September 1946 as a temporary measure to supplement the output of the Basin Bridge Station. This step enabled over 2,000 domestic and small power connections being given.

Furthermore, to meet the rising demand for power in the City until the new boilers and 15,000 K.W. turbo-set are ready in 1949, Government approved the purchase of 2—2,500 K.W. transportable power sets at a cost of Rs. 29 lakhs and their temporary installation at Madras. Orders for two Richardson-Westgarth-Brown Boveri sets were placed with Messrs. Easun Engineering Company, Madras. The sets have since arrived and are in course of erection. They are expected to be in commission in September 1947. Orders for 2—3,000 K.V.A., 5—6·6/11/33 K.V. transformers for use with three sets have been placed with Messrs. A.C.E.C. Company through the Director-General, India Stores Department.

A special circle has been formed since April 1947 to attend to the work connected with the acquisition of the Madras Electric Supply Corporation undertaking and its operation under departmental management. The circle will also look after the Madras Plant Extensions and the installation of the transportable sets for the running of the undertaking as a Government concern after it is taken over from the Madras Electric Supply Corporation.

11. *Electrical inspectorate and licensees.*—The year under review was another difficult year for the licensed electric supply undertakings. The abnormal conditions created by the war necessitated the continuance of the Restriction and Control Orders for regulating electric supply. The supply position of plant and materials did not improve appreciably but certain relaxations regarding domestic connection and powtr-supply for production of consumers' goods in short supply over some parts of the presidency became feasible. So also extension of hours of running of certain power houses and street light hours. By July 1946 water conditions at Mettur improved sufficiently to enable complete removal of all the restrictions imposed in certain licensees' areas due to the same. Domestic connexions on the basis of fixed monthy quota for each licensee, wherever plant capacity permitted, came into force from March 1946. At the close of the year 26 licensees were levying war costs surcharge.

The number of licensed electric supply undertakings at the close of the year was 80 out of which 35 were managed by local bodies and the rest by private companies. No new licence under the Indian Electricity Act was issued during the year. The Kurnool Municipal undertaking was taken over by Government on 1st October 1946. Government have sanctioned the taking over of Kollegal and Hindupur Electrical undertakings also to ensure regional development of the area and improvement of the supply conditions in these places. The conditions of supply in the licensed undertakings were normal, except for major interruptions and unsatisfactory supply due to engine trouble in the generating stations at Cannanore, Cuddapah, Proddatur, Kollegal and Ongole. Dissatisfaction at salaries paid and consequential strikes in electric

supply undertakings were another new feature of the year. There were strikes in Cuddapah, Calicut and Cannanore but supply was not greatly affected.

Accounts of 63 licensees were scrutinized during the year.

Five hundred and fifty-six cinemas were functioning at the end of the year under report.

This was the eighth year of working of the Madras Electricity Duty Act. The revenue from this source was Rs. 9·83 lakhs. The receipts from inspection fees and penalty for excess consumption of electrical energy were Rs. 0·83 lakh and Rs. 2·02 lakhs respectively.

The total number of accidents, including those on lines owned and operated by Government was 117 of which 59 were fatal.

The Advisory Board constituted by the Government of India to examine the Principles for the Control of Public Utility Finance drafted by their Electrical Commissioner have submitted their report and it is now under the consideration of the Government of India. Sri K. V. Karantha, Chief Electrical Inspector to Government, who was one of the members of the Board, attended all their meetings.

12. *Electricity buildings.*—The proposal for the construction of a separate building for the departmental headquarters, at an estimated cost of Rs. 24 lakhs, submitted to the Government by the Chief Engineer, Public Works Department, is under consideration by the Government.

13. *Electricity Department Journal.*—The publication of this useful journal is being continued with improvements from time to time under the Editorship of Mr. K. V. Karantha, the Chief Electrical Inspector to Government.

14. *Foreign training.*—Sri B. S. Murthi, Chief Accountant, underwent training in America for about a year on the commercial and administrative sides of the electric supply industry. He returned to India in May 1947 and has been appointed as Chief Controller of Accounts.

Messrs. S. Mohammed Ali and C. S. Avadhani, Assistant Engineers, have been deputed to England for training for a period of two years and are working with Messrs. English Electric Company and Messrs. Boving and Company, respectively.

An Assistant Engineer will be deputed in 1947–48 for training in the works of the English Electric Company, during the manufacture and assembly of the 15,000 K.W. turbo alternator set ordered of them for the Basin Bridge Power Station.

15. *Acquisition of electrical undertakings in this Province.*—The Madras Electric Supply Corporation Undertaking would be taken over in August 1947. The Kurnool Municipal undertaking was taken over in October 1946. Schemes providing for the acquisition of the Kollegal and Hindupur undertakings have already been sanctioned. The question of taking over the Anantapur Municipal Electrical undertaking, as requested by the Municipality, is under consideration. The question of acquisition of certain small inefficient and unremunerative private and local authority undertakings was also under consideration. It has already been decided by Government that private undertakings should be taken over by Government as and when licences expire. While there is no doubt whatever that nationalization of the industry would be in the public interests the present time does not appear propitious for compulsory acquisition of licences, in view of the inflated prices of plant and equipment now prevailing as a vicissitude of the war.

16. *Power demand and future development policy.*—The demand for power is mounting up. The South Indian Railway contemplates electrification of their sections from Tambaram to Chingleput and Chingleput to Arkonam in the first stage and from Chingleput to Villupuram later in the second stage. According to the anticipated rural development in the next five ytars, subject to availability of materials, 1,500 more villages may be electrified, considerable industrial expansion is expected especially in the textile, cement and chemical industries—Rural electrification on a wide scale is demanded by the public and subject to availability of materials, a programme to connect up 1,500 more villages in the next five years with 20,000 pump-sets and 2,000 small industries is quite feasible.

Surveys of the power demand in the Hydro area are being periodically made and the one recently completed for the five-year period 1947–51, based on the actual peak demand of each system and the expected additions of load of various categories, indicates a minimum total demand on the hydro systems as follows :—

Year.	Expected total demand.
1946	62,000 K.W. (actual).
1947	69,000 K.W.
1948	82,000 K.W.
1949	99,000 K.W.
1950	111,000 K.W.
1951	125,000 K.W.

The above forecast will be valid provided the present conditions regarding availability of industrial plant, steel and cement do not worsen.

To meet the rapidly growing demand it is essential that the projects in hand are completed with all possible speed. Delivery conditions for plant do not however augur well and the freeze up in England earlier this year is going to result in months of postponement. Steel position in India is bad, transport has not improved, paucity of civil engineers continues and the men available are inexperienced. Taking these factors into account the following programme may be feasible :—

(i) Papanasam IV unit may be in service by the end of 1948.

(ii) Moyar I unit may be in service in the second half of 1949, and the project completed early in 1950.

(iii) Pykara Extensions I unit may be in service in the first half of 1951 and the project completed before the end of that year.

(iv) Madura Thermal Unit may be in service by early 1949.

A comparison of the forecast of demand and of available power *indicates* that the power position is going to be rather tight and we may *just be able* to escape power shortage. Slight deficits could be remedied by staggering loads. It has to be remembered that the factors which impede progress in power projects equally impede development of the industrial and rural demand and so, on the whole, it is likely that the department may get through this quinquennium, though on the barest of margins. If however the weather conditions are not normal and water becomes short, power shortage may occur, in the early dry months of 1949, 1950 and 1951 until the Pykara extensions are completed, restrictions may then have to be imposed for short periods.

In the Madras City area, the power situation will continue difficult until the first boiler ordered for the Madras Thermal Extension is brought to steam which is expected by the end of 1948. To meet the more essential loads that arise in the meanwhile, 2–2,500 K.W. transportable generating sets are being

installed at Basin Bridge and are expected to be in commission by October 1947.

So far as the Andhra System is concerned, the expansion of the Thermal station at Bezwada and Vizagapatam in progress will be just able to meet the demands in the area and the position will be eased only on the completion of the Machkund Hydro Electric Project.

In view of the power position disclosed above, augmentation of power plant is urgent and the following immediate steps are under consideration :—

(*a*) Second set of 8,000 K.W. capacity to be ordered for the Madura Thermal Plant. This would so to say complete the Papanasam Hydro Thermal Project.

(*b*) Negotiations to be started in regard to Periyar Scheme with the view to its early commencement. Alternatively some other hydro scheme, Kundah, Upper Moyar, Kumbar or similar economical scheme has to be taken up.

(*c*) The development of the Mekkadatu Scheme to be expedited.

(*d*) The second 15,000 K.W. set for the Madras Thermal Extensions to be ordered. This would stabilise Mettur, in addition to meeting the growing city demand.

(*e*) The Tungabhadra Hydro scheme to be expedited.

The rate of growth of demand in the future years is likely to be such that practically every year we shall have to be taking up fresh power projects to keep ahead of the demand.

As soon as the lignite deposits in South Arcot district are found to be economically workable, the large Thermal station contemplated there may be put up.

Thus a heavy programme of development lies ahead of the department.

In the hydro area in the south and especially at Mettur there is excess of water over seven to eight months in the year from June to January which is not at present being utilized for power production. About 20,000 K.W. can be made available from Mettur Power House alone if a seasonal demand extending from June to January can be developed. Pykara would also contribute some amount of seasonal power. Whether this power could be utilized advantageously for lift irrigation with reference to the crop regimes in the districts covered by the power grid or for purely seasonal pumping schemes from rivers and irrigation channels has been under the consideration of the department and the Director of Agriculture and the Chief Engineer (Irrigation) are being consulted in the matter.

16-A. *Madras Grid map (frontispiece)*.—The Grid map has recently been towers for the line were being fabricated in the Public Works Workshops. The transformers and other equipment for the line are expected to arrive in the course of 1947–48.

17. *Investigations*.—A list of the water power sites in the Province was first prepared by Mr. Meares in 1920. More sites have since been located. In all there are 84 known sites. Three have already been developed. Two are under development. In regard to 11, preliminary investigations and surveys were done and valuable data is on record. Thirty-one have been considered as not feasible of development for one reason or another and on the rest, no action has been taken.

The economic hydro power resources in the Province are in the neighbourhood of 600,000 K.W. at 60 per cent load factor but nearly half of this

is secondary power requiring some 125,000 K.W. of thtrmal electric plant if it is to be utilized as primary power. Should industrial and agricultural progress be as rapid as desired, it is not unlikely that all the water power sources in the Province may be used up in about 15 to 20 years.

It is therefore essential and urgent that a systematic study is made of all the known sites in the Province and a list of sites worthy of development drawn up, ranking them in order of their importance and economic feasibility. A careful study of contour maps of the hilly districts should be made for possible new sites. An examination of rainfall and run-off data has to be made and programme chalked out for starting hydro-metric work at promising sites. For this purpose a senior experienced officer, Mr. P. Natesa Ayyar, has been engaged as Special Officer, Hydro-Electric Surveys, for a period of one year. He took up his duties in July 1947.

18. *Organization.*—The present organization of the department is indicated in the chart on the opposite page. A special circle has been formed at Madras with a Superintending Engineer (Electrical) assisted by an Assistant Accountant-General, for work connected with the acquisition of the Madras Electric Supply Corporation. Two additional civil circles have been formed under the General Superintendent, Power Development, one for the Moyar Scheme and Pykara Extensions, and the other for the Machkund Scheme. A circle for transmission line construction with a Superintending Engineer (Electrical) will be formed shortly under the General Superintendent, Power Development. A Special Officer for Hydro-Electric Surveys and a Chief Controller of Accounts have also been appointed. The Superintending Engineer (Special) for Madras Electric Supply Corporation work, the Special Officer, Hydro-Electric Surveys and the Chief Controller of Accounts are working directly under the Chief Engineer.

Sir Henry Howard continued to be the Consulting Engineer to Government.

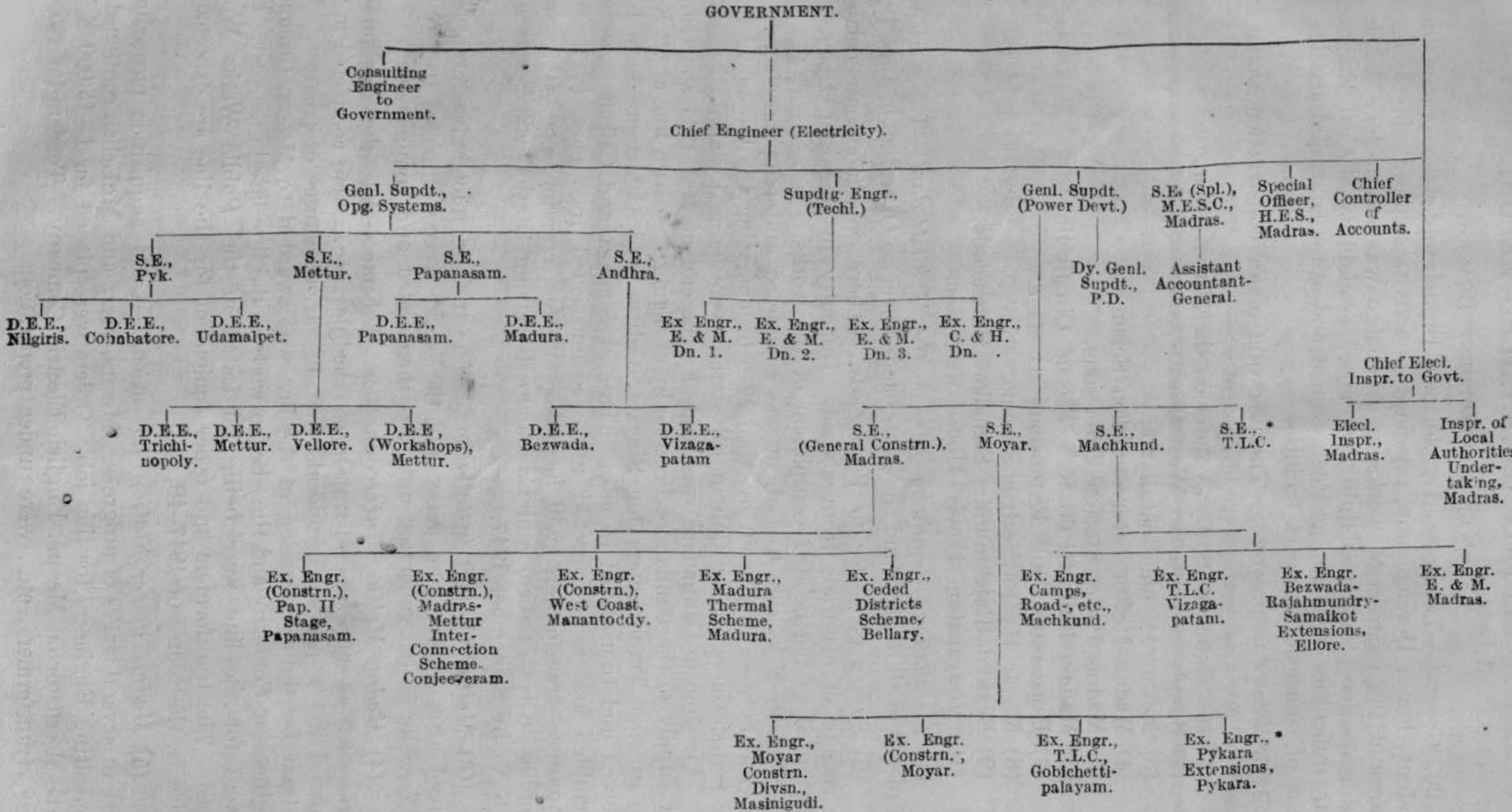
Living conditions continued to be very difficult and representations for higher wages and salaries and betterment of service conditions of the work-charged as well as the Provincial staff continued to be received throughout the year. The position somewhat eased with the revision of salaries by Government as per the recommendations of the Cabinet Sub-Committee. The petitions of the work-charged staff still continue to be received and are being given due attention.

This is a commercial public utility department. Its efficiency and progress depend much on the willing co-operation of the entire staff and it is therefore essential that the staff be given liberal treatment on par with what is obtaining in large private commercial undertakings or State-managed railways.

19. *Administration.*—The delegation of powers to the Chief Engineer, General Superintendent, Power Development and General Superintendent, Operating Systems, referred to in the last report, was sanctioned by Government with some modifications. The reorganization of the department with powers of direct correspondence with Government exercised by the General Superintendent, Power Development, the General Superintendent, Operating Systems, and the Chief Electrical Inspector to Government has worked on the whole fairly well, but it is clear that a further reorganization is necessary in view of the large expansion of the activities of the department that has taken place. Proposals in this behalf are under study.

Detailed report on the activities of the different branches of the department are given in Section II.

ORGANIZATION CHART OF THE ELECTRICITY DEPARTMENT.



* Sanctioned and to be filled up shortly.

SECTION II—DETAILED REPORT.

POWER DEVELOPMENT BRANCH.

20. *General.*—The Power Development Branch under the General Superintendent, Power Development, txpanded its activities considtrably during this year and the progress of works in its charge was satisfactory despite the handicaps due to non-availability or limited availability of Civil Engineering staff, difficulties in obtaining steel, cement and other controlled articles, and want of sufficient transport facilities.

21. *Schemes in progress.*—The following major construction works sanctioned in previous years were in progress :—

(1) Installation of Spillway gates on the Mukurti dam.
(2) Supply of power to West Coast.
(3) Mettur IV unit installation.
(4) Madras-Mettur Interconnexion Scheme.
(5) Madras Power Station Extensions.
(6) Madura Koilpatti 66 K.V. Second Circuit line.
(7) Papanasam Plant Extensions—II stage.
(8) Moyar Hydro-Electric Scheme.
(9) Bezwada-Rajahmundry-Samalkot Extensions.
(10) Vizagapatam Power House Extensions.

(1) *Installation of spillway gates on the Mukurti dam.*—The work was completed in all respects and the gates handed over to Operation in June 1946.

(2) *Supply of power to West Coast.*—There was inordinate delay in the receipt of materials from abroad. Difficulty in recruiting labour also contributed to the belated completion of the works.

The 66 K.V. line to Calicut was completed and temporary supply to the local licensee was given in April 1946 by operating the line at 22 K.V. The transformers for the Calicut sub-station were being installed.

The line to Cannanore was ready by the end of May 1947 and temporary supply to the Cannanore licensee by changing the main line at 22 K.V. was given. Transformers for Singara, Calicut and Cannanore have been received and transported to site. Those at Singara and Calicut have been assembled and were expected to be commissioned in August 1947. The Cannanore transformers will be taken up for erection soon afterwards. Supplies to both Calicut and Cannanore Receiving Station will be given at 66 K.V. by September 1947.

(3) *Mettur IV unit installations.*—The turbine inlet valves eventually arrived after a very long delay and the works were completed in October 1946. The fourth generator unit was then tested and commissioned.

(4) *Madras-Mettur Interconnection Scheme.*—All the preliminary works such as surveys, preparation of schedules, etc., were completed in the year. Land acquisition proposals were in various stages of progress. The contract for the construction of the line was awarded to Messrs. Crompton Engineering Company and they began work on the line late in the year. The towers for the line were being fabricated in the Public Works Workshops. The transformers and other equipment for the line are expected to arrive in the course of 1947–48.

(5) *Madras Power Station Extensions.*—Land acquisition proceedings were in several stages of progress. Messrs. Merz and McLellan continued as Consulting Engineers for this job. Orders were placed for 1—15,000 K.W. turbo-alternator on Messrs. English Electric Company. Tenders for switchgear, transformers, etc., were under preparation.

To meet the immediate shortage of power in the City, installation of two 2,500 K.W. transportable power sets were sanctioned by the Government. The sets have been received and are under erection. Further works on this scheme have since been transferred to the Superintending Engineer (Special), Madras.

(6) *Madura-Koilpatti* 66 *K.V. line.*—Unavoidable delay in the arrival of insulators and earth wire handicapped progress on this line considerably. The materials have since been received and the works are expected to be completed and handed over to operation about July 1947.

(7) *Papanasam Plant Extensions—II stage.*—Orders for the generating plant, pipe line and penstock had already been placed. Messrs. Indian Hume Pipe Company, the contractors for the supply and erection of the pressure pipes, started manufacturing them late in the year. Progress was much affected by the delay in the supply of steel plates by Messrs. Tatas due to local disturbances and lack of sufficient transport facilities.

The civil works in the surplus course were in progress.

Part of the machinery for the IV generating unit and the connected equipment is expected to arrive in the course of 1947–48.

(8) *Moyar Hydro-Electric Scheme.*—The Circle office for this scheme was formed with temporary headquarters at Ootacamund in May 1946. The construction of quarters at Masinigudi and at Moyar was in progress. The Circle office moved into permanent quarters at Moyar in July 1947.

Anti-malarial operations were carried out to combat malaria.

A major portion of the works connected with the formation of camp roads were completed in the year. Adequate protected water-supply could not be given to all the camps owing to delay in obtaining distribution pipes. The pipes have since been received and the laying of water-supply line is in progress.

Electric supply from Singara was extended to Masinigudi and Moyar and the construction plant is being run by electricity.

Civil works connected with the Singara and Moyar flumes, Maravakandy dam, forebay, etc., were in progress.

Messrs. Indian Hume Pipe Company, contractors for the supply and erection of the pressure pipes, have made all preliminary arrangements for setting up their factory at site.

Tenders for the construction of quarters for the power house camp have been called for.

Orders were placed with Messrs. Associated Electrical Industries (India), Limited, for the generating units transformers and switchgear extensions at Pykara and for the switchgear at Moyar with Messrs. English Electric Company. A part of the equipment is expected to be received in 1947–48.

The survey of the Moyar-Erode 110 K.V. transmission line was completed. The contract for the erection of the tower line was awarded to Messrs. British Insulated Callender's Cables, Limited. The towers for the line were being fabricated by Messrs. Richardson and Cruddas, Limited. The erection of the line is, expected to be taken up only in 1947–48, to suit arrival of conductors and insulators.

(9) *Bezwada-Rajahmundry-Samalkot line.*—Land acquisition proceedings and construction of sub-station quarters were in several stages of progress. The contract for the erection of the tower line was awarded to Messrs. P. Natesan and Company and they have begun work on the line. The departmental workshops at Mettur were entrusted with the work of fabricating the towers for the line.

Contract for the execution of special foundations for the towers in the bed of the Godavari River for the 110 K.V. line crossing was entrusted to Messrs. Gannon Dunkerley and Company on cost plus percentagt basis after obtaining the sanction of Government. The contractors have set up their establishment for proceeding with this work.

Orders for the turbo-alternator sets, boilers and other equipment required for the Bezwada-Power House Extensions were placed in the United Kingdom through the Director-General. One of the transformers for the Bezwada Power House was received in the year. The other machinery and equipment are expected in 1947–48 and 1948–49.

(10) *Vizagapatam Power House Extensions.*—Orders had already been placed for the generating plant, boilers and transformers. One boiler was received and was under erection. Work on the transmission lines covered by the scheme was in progress. The civil works connected with the installation of the additional unit at Vizagapatam could not be taken up in the year for want of staff.

22. *New sanctioned schemes.*—The following schemes were sanctioned during the year :—

(*a*) Machkund Hydro-Electric Scheme.
(*b*) Madura Thermal Scheme.
(*c*) Pykara Hydro-Electric Scheme—III and final stage.
(*d*) Ceded Districts Scheme.
(*e*) Conjeeveram-Chingleput-Arkonam Extensions.
(*f*) Trichinopoly-Dalmiapuram Extensions.
(*g*) Erode-Salem Extensions.
(*h*) Madura-Tirumangalam-Rajapalyam-Tenkasi Extension.

(*a*) *Machkund Hydro-Electric Scheme.*—This is a joint undertaking of the Madras and Orissa Provinces and the Madras Government's share is estimated to cost Rs. 420·11 lakhs initially rising to Rs. 587·6 lakhs in ten years. The main features of the scheme have been explained in last year's report.

Owing to delay in the employment of staff the works on the scheme could be commenced only in September 1946. The Circle office for the scheme was formed at Vizagapatam in December 1946.

Land acquisition proposals could not be taken up in the year under report as the scheme site is in an unsurveyed area in Orissa territory. Survey is in progress. Special land acquisition officers have been posted for work on the Madras side.

The branch from the main road to the scheme site was improved by providing temporary wooden bridges at stream crossings. Improvements to the main road from Vizagapatam to the Orissa border were put in hand by the Highways Department. The work is progressing. Improvements on the Orissa side also were taken up in the year and were in progress. Transport of materials to the scheme site is being effected through the Bobbili-Salur-Jeypore-Lambataputtu road.

The rail head for the scheme was fixed at Bobbili and accommodation for the storage of materials and a railway siding to the storeyard were arranged.

Contract for the construction of temporary hutments for the initial accommodation of the staff and labourers at the camp was awarded and the connected works were in progress.

The scheme site is located in a highly malarial tract and the staff were having frequent attacks of malaria. Necessary public health staff have been posted for anti-malarial opertions.

Much progress on the works was not possible as there was only one division with a single subdivision and a few supervisors under it. The second Assistant Engineer for the works joined duty only late in March 1947.

Orders were placed through the Director-General, India Store Department, for four numbers 170 K.W. oil engine sets for construction power netds. The sets are expected to be received in 1947–48. Arrangements for the procurement of tools and plant required for the work were also put on hand.

In accordance with the agreement with the Orissa Government an Advisory Committee consisting of—

1. The Superintending Engineer, Machkund Hydro-Electric Scheme	Nominated by the Government of Madras ;
2. The Collector of Vizagapatam	
3. The Collector of Koraput	Nominated by the Government of Orissa ; and
4. Electrical Engineer and Inspector, Orissa Government	

5. The Diwan of Jeypore—Nominated by the Maharaja of Jeypore.

was formed with the Superintending Engineer, Machkund Hydro-Electric Scheme, Vizagapatam, as the Convenor and Secretary Member. Two meetings were held in which measures to push through the works were considered.

The Joint Board of Control provided for in the agreement has also been constituted with—

1. Hon. Minister for Electricity or, in his absence, Secretary to Government, Public Works Department	Representing the Government of Madras ; and
2. Collector of Vizagapatam	
3. Chief Engineer (Electricity)	
4. General Superintendent, Power Development (General Superintendent, Operating Systems, after the commencement of operation of the scheme)	
5. Hon. Minister for Public Works, Orissa Government	Representing the Government of Orissa.
6. Chief Engineer (Electricity), Orissa Government ..	

In view of the specially arduous nature of the works, a special pay of 25 per cent of the pay, called the 'Project allowance' has been sanctioned by Government for the staff employed on this scheme.

(*b*) *Madura Thermal Scheme*.—This scheme was sanctioned to augment and improve the primary power output of the Papanasam Hydro-Electric Scheme by installing initially a 4,000 K.W. set from the army reserve pool and later a 8,000 K.W. set to be obtained from the United Kingdom. No progress was made on the scheme during this year on account of delays in the acquisition of the site and arranging of a railway siding.

The transformers for the station were ordered through the Director-General of Stores and are expected to be received in the course of 1947–48.

(*c*) *Pykara Hydro-Electric Scheme—III and final stage*.—The III stage of the Pykara plant extensions was sanctioned by Government in 1945, but the works could not then be put in hand on account of the difficulty in obtaining the high pressure pipe. The Moyar Hydro-Electric Scheme was therefore sanctioned instead. Since the water storage now serving the Pykara Power House was inadequate for its full utilization, it was considered necessary to proceed with the construction of the Pykara dam also. A revised estimate for the III stage extensions to include dam and installation of the two more 12,500 K.W. units at Pykara Power House and the II stage of the Moyar Hydro-Electric Project providing for the installation of a third unit at Moyar was therefore sanctioned by Government in June 1946.

A subdivision for the dam works was formed in August 1946 and preliminary works were taken up. The Coffer dam was in progress at the end of the year.

Contracts for the construction of quarters were awarded and the works were in progress. Power supply for the camp was arranged for.

The difficulties in the acquisition of steel, cement, etc., and the delay in getting staff were affecting the progress of the works considerably.

(d) *The Ceded Districts Scheme.*—This scheme is to purchase power in bulk from the Mysore Government from their Jog Falls Hydro-Electric Scheme and to distribute it in the Ceded districts including supply of construction needs on the Tungabhadra dam.

The division for this work was formed in October 1946. Land acquisition survey and clearing of transmission line routes were in progress during the year. The survey and alignment of the 66 K.V. line from the Mysore State border to Guntakal via Tungabhadra dam site was completed and tower schedules were being finalized. The contract for erection of the line was awarded to Messrs. Crompton Engineering Company, Madras. The transformers required for the various sub-stations were ordered through the Director-General, India Store Department. The scheme is expected to be completed by end of 1948.

(e) *Conjeeveram-Chingleput-Arkonam Extensions.*—Preliminary works such as land acquisition and surveys were in progress.

(f) and (g) *Erode-Trichinopoly-Dalmiapuram Extensions and Erode-Salem Extensions.*—The former scheme was sanctioned in January 1947 with a view to improve the present supply conditions and to cater to new special loads anticipated in the Trichinopoly-Dalmianagar area.

The latter scheme also sanctioned in January 1947 envisages the construction of a 66/110 K.V. line from Erode-Salem and establishing a sub-station at Salem for improving supply in the Salem area.

The works would be taken up as soon as materials can be arranged and the necessary staff is posted.

(h) *Madura-Tirumangalam-Rajahpalayam-Tenkasi* 66 *K.V. Extension.*—The extension has been sanctioned to meet the anticipated industrial and agricultural load development in the area and would be taken up in 1947–48.

23. *Schemes not yet sanctioned—The Nellore Thermal Scheme.*—This scheme is initially intended to cater to the power needs of the important industrial, mining and other concerns in the Nellore district.

Though the administrative approval for the scheme has not yet been received, preliminary works such as surveys, placing of orders for machinery, etc., were taken up in 1946–47.

The two 2,500 K.W. Yarrow B.T.H. transportable power sets intended for this scheme and ordered through the Electrical Commissioner have since been received and are stored at the Basin Bridge Power Station Compound at Madras temporarily, pending sanction to the scheme and its execution.

The other schemes awaiting the sanction of Government are mentioned in Section I.

24. *Programme for* 1947–48.—The following works will be completed and handed over to operation :—

(1) Supply of 66 K.V. power to the Calicut and Cannanore areas on the West Coast.

(2) Madura-Koilpatti Second Circuit line.

Progress of works on the other schemes will be broadly as follows :—

Madras-Mettur Interconnexion Scheme.—The construction of quarters at various sub-stations will be in progress. The erection of the tower line and sub-station structures will have been completed.

Papanasam Plant Extensions—II stage.—The balance of works on the surplus gates, construction of additional quarters and L.P.P.L. Penstock and Surge tank are all expected to be completed in the year. The generators and accessories are expected only in the year and their erection will be taken up in 1948–49.

Moyar Hydro-Electric Scheme.—Construction of the balance of camp buildings and projected water-supply arrangements will be completed. Excavation for the foundations on the Maravakandy Dam will be completed and masonry work will be in progress.

Grading for the low pressure pipe line and penstock will be in an advanced stage of progress. Erection of the pipe line will be taken up before the end of the year.

Construction of the power-house buildings will be taken up. A part of the machinery from the United Kingdom is expected by the end of the year.

Erection of the Moyar-Erode 110 K.V. line will be taken up by about the middle of the year and will be in progress. Buildings at various substations will have been completed.

Bezwada-Rajahmundry-Samalkot Extensions.—Construction of most of the substation buildings and erection of the tower line from Bezwada to Godavari river is expected to be completed. Foundations in the Godavari river bed will be in progress. Foundations for the power-house at Bezwada and civil works for structures at the various substations will be in progress. Some of the plant and machinery from the United Kingdom will be received in the year.

Vizagapatam Power House Extensions.—The civil works connected with the installation of the IV unit will be taken up in the year. The boilers will be under erection.

Machkund Hydro-Electric Scheme.—The following works are expected to be in progress in the year :—

(1) Anti-malarial measures.

(2) Construction of temporary and permanent buildings and water-supply and drainage arrangements.

(3) Completion of improvements to the existing roads and construction of new roads and bridges.

(4) Construction of coffer dam and other preliminary works on diversion weir and flume channel.

(5) Completion of acquisition proceedings.

(6) Completion of the construction power house and local distribution and telephone lines.

(7) Awarding of contract for and starting of tunnel work.

(8) Exploration of foundation for power house and forming track for penstock.

(9) Survey of the Vizagapatam-Machkund T.L. route and preparation of schedules.

(10) Completion of the railway siding at Bobbili.

In addition to the above, the work on the procurement of necessary construction tools and plant will be pushed through.

The Madura Thermal Scheme.—Construction of the power house building and staff quarters and erection of the 4,000 K.W. set and accessories are expected to be almost completed in the year. The high tension line connecting the Madura substation to the thermal power house is also expected to be completed.

Pykara Hydro-Electric Scheme—III and final stage.—Camps and roads are expected to be completed. Excavation of dam foundations, boring and grouting will be in progress.

Ceded Districts Scheme.—All land acquisition proceedings for substation sites and construction of buildings therein are expected to be completed in the year. The transmission line work will be in full swing. The transmission system is expected to be ready for receiving power from the Mysore Government by January 1949.

Conjeeveram-Chingleput-Arkonam Extensions.—All works connected with land acquisition, surveys, construction of substation quarters art expecttd to be completed in the year.

Erode-Trichinopoly-Dalmiapuram, Erode-Salem and Madura-Tirumangalam-Rajapalayam-Tenkasi Extensions.—The works will be taken up for execution if the materials and the staff required are available.

The Nellore Thermal Scheme.—Works on the scheme will be taken up as soon as sanction for the scheme and the staff therefor are received. The two numbers 2,500 K.W. sets already received and stored at Madras will be transported to the power house site and their erection commenced.

Investigation.—The investigation of the Sileru Hydro-Electric Scheme will be taken up during the year, if the staff required therefor is made available.

25. *Organization.*—With new schemes being sanctioned and taken up for execution, the office of the General Superintendent, Power Development, was enlarged. A Deputy General Superintendent, Power Development, was posted early in February 1947 and on his assuming charge, the post of the Personal Assistant to the General Superintendent, Power Development, was abolished.

Besides the General Construction Circle at Madras, two more circles were formed, one in May 1946 with headquarters temporarily at Ootacamund to be in charge of the works connected with the Moyar Hydro-Electric Scheme and Pykara Plant Extensions and the other in December 1946 with headquarters at Vizagapatam to be in charge of the Machkund Hydro-Electric Scheme and Bezwada-Rajahmundry line. There were five divisions under the Superintending Engineer, General Construction Circle, three under the Superintending Engineer, Moyar Hydro-Electric Scheme, and two under the Superintending Engineer, Machkund Hydro-Electric Scheme. A third transmission line construction division for Machkund works has since been formed. An Executive Engineer (Electrical and Mechanical) for the Machkund Scheme has since been appointed with headquarters at Madras. A fourth division for the Pykara plant extensions under the Superintending Engineer, Moyar, will be formed shortly.

A fourth circle under a Superintending Engineer (Electrical) for the construction of all transmission lines is expected to be formed in the course of 1947–48 with a suitable redistribution of the divisions under the other Superintending Engineers.

Satisfactory progress on the construction programme detailed above is subject to the availability of a sufficient number of civil engineers and an adequate supply of materials and transport. Great difficulty was experienced during the year in obtaining civil supervisors for the several construction works and this seriously handicapped progress. The civil staff required for the department is now being drawn from the Public Works department which has to supply, apart from its own need the requirements of the Special Projects, Irrigation and Highways departments also. The share this department received from the common pool of civil engineers during the year was

grossly inadequate for its needs and repeated representations resulted only in slight improvement of the share. It has been urged on the Government that in view of the wide gulf between the demand and supply of engineers, the available staff has to be allotted to the various schemes on the basis of priority determined by their urgency and importance. The list of priority can be decided only by the Government and allotment of staff can follow on that basis. Each department will then know what staff they can get for their schemes during the year and plan their work suitably.

OPERATING SYSTEMS BRANCH.

26. *General.*—The operation and maintenance of the hydro and thermal systems was generally satisfactory. An increase in demand on the power systems and revenue earned was recorded notwithstanding the continuance of the restriction and control and water shortage at Mettur in the first quarter of 1946–47. Water conditions in the remaining period of the year were very satisfactory. All restrictions imposed on account of the low water conditions at Mettur were completely removed in July 1946.

The systems were run in parallel whenever required so that maximum use of the water available in the three reservoirs could be made, varying the three systems as a single unit.

The IV unit at Mettur was commissioned in October 1946 increasing the station installed capacity to 50,000 K.V.A. In the thermal systems, the plant capacity at Bezwada and Vizagapatam was improved during the year by the addition of a 3,000 K.W. turbo set and a 22,000 lb./hr. boiler, respectively, at the two places. Some additional loads were connected at Vizagapatam. No additions could, however, be made at Bezwada in spite of the commissioning of the 3,000 K.V.A. set in view of shortage in coal supply. The Municipal Electrical undertaking at Kurnool was taken over by the Government and is being operated by the department as part of the Andhra System. A 150 K.W. set is being added to the station and supply will then improve much.

Supply of bulk power to the Travancore Government commenced on 11th September 1946, and to the Calicut licensee on 10th April 1946. The Cannanore-Tellicherry licensee is also being given supply from 22nd May 1947.

The Kollegal and Hindupur undertakings would be taken over as soon as Mysore Power can be made available in this area.

On an urgent request from the Public Works Department, 19 miles of 11 K.V. line was constructed from Rajahmundry to Ramapadasagar works site and 11 K.V. supply was made available for expediting works at the dam site by availing the surplus power from the Andhra Paper Mills.

The Defence of India Rules lapsed on 30th September 1946. The Emergency Provisions Continuance Ordinance, 1946, of the Central Government under which the various restrictions and control orders and surcharge orders were continued beyond 30th September 1946 expired on 24th March 1947. Orders were issued by the Government of Madras continuing all the restriction and control and surcharge orders beyond 24th March 1947 under the Madras Essential Articles Control and Requisitioning (Temporary Powers) Act, 1946. The question of revising the Government undertakings war costs surcharge was under consideration at the close of the year.

In the Pykara System there was an unfortunate accident in the second winch haulage on 11th July 1946 caused by the snapping of the wire rope due to internal deterioration of the rope. Five people were killed and over a dozen injured. As the rope on the first, second and fourth winches were old and due for renewal, traffic was not resumed on them until new ropes which were on order were received.

29. *Load development*.—The expected demand on account of the Nilambur mines did not materialise. The Cordite Factory load which dropped down to about 400 K.W. has discontinued taking Pykara supply since November 1946. The Factory is now getting power from their own Katen power-house and Pykara supply serves only as standby. Additional demands were sanctioned for certain mills, the cement works at Madukkarai and the Industrial Chemicals, Coimbatore. The cement works have given notice of their intention of adding one more kiln requiring a demand up to 3,800 K.V.A. by the end of 1947. The upwards limit of maximum demand of supply fixed for the various licensees were revised whenever possible.

The following statement shows the growth of load and revenue earned since the commencement of operations :—

Year.	Peak load in K.W.	Energy generated in millions of units.		Gross receipts (including miscellaneous receipts) RS. IN LAKHS.
1933–34	3,150	10·9		4·4
1934–35	6,600	30·0		10·5
1935–36	10,100	50·3		16·3
1936–37	14,900	75·6		24·0
1937–38	17,200	82·4		27·6
1938–39	17,900	84·3 *plus*	16·8‡	31·0
1939–40	24,900	114·7 ,,	3·81‡	38·5
1940–41	26,200	136·13 ,,	0·67‡	42·7
1941–42	28,900	156·57 ,,	0·025‡	49·4
1942–43	30,600	165·14 ,,	2·38‡	52·2
1943–44	31,000	165·74 ,,	7·78‡	56·6
1944–45	30,300* / 26,600†	158·59 ,,	2·86‡	49·7
1945–46	38,300* / 27,150†	173·11 ,,	1·27‡ 3·58§	53·0
1946–47	37,800* / 27,700†	145·00 ,,	3·4* 2·1§	52·6

* Represents the station peak while giving relief to other systems.
† Represents the peak for system loads only.
‡ Represents units purchased from Mettur.
§ Represents units purchased from Papanasam.

30. *Financial results*.—The following figures show the financial working of the system for 1946–47 :—

Particulars.	Amount. RS.
1 Capital outlay including arrears of interest ..	3,61,71,289
2 Gross revenue	52,62,905
3 Operation and maintenance including suspense.	13,22,136
4 Depreciation fund	8,10,228
5 Special reserve fund	3,24,091
6 Total expenses (items 3 plus 4 plus 5 above) ..	24,56,455
7 Net revenue (items 2—6)	28,06,450

Item (1) above does not include suspense. Net amount to the credit of reserve funds after operation in the course of the year are as below :—

	RS.
1 Depreciation fund	62,91,418
2 Special Reserve Fund	25,19,302

31. *Connected load.*—The connected load on the system at the end of the year under different categories was as follows :—

Serial number and description of load.	Connected load in K.W. on 31st March 1947.
1 Industrial high voltage supplies—	
(a) Textiles	23,378
(b) Cement	3,772
(c) Chemicals	250
(d) Gold mining	231
(e) Oil, other industries, etc., including Government departments	1,304
(f) Cordite Factory	1,088
(g) Tea estates	4,359
(h) Licensees and municipalities	17,418
2 Industrial low voltage supplies	4,834
3 Irrigation and agriculture	14,873
4 Domestic heat power and light	2,368
5 Commercial heat and power and light	148
6 Public water-works and sewage pumping	5
7 Street lighting	120
8 Miscellaneous (Railways and M.E.S. at L.T.)	106
Total	74,254

32. *Power-house.*—The power house peak load reached a figure of 37,800 K.W. at P.F. ·99 lag on 6th June 1946 with Pykara and Mettur systems in parallel and Pykara giving relief to Mettur. The peak for the system alone for the year was 27,700 K.W. (6th March 1947) as against 27,150 K.W. the previous year.

The total number of units generated during 1946–47 was 145·002 millions as against 173·105 millions in the previous year. The energy interchanged among the systems works as follows :—

Supplied to		Received from	
Mettur.	Papanasam.	Mettur.	Papanasam.
17·86 millions	5·49 millions.	3·4 millions	2·1 millions

The following important works were carried out during the year in addition to routine maintenance works :—

(1) The G. and K. valve of machine No. 4 was modified, replacing the fixed seating with new nickel bronze seatings. The fixing of the seating was reinforced with a great number of studs and the existing brass studs were replaced by high tensile steel ones. The value was tested for closing under unbalanced conditions of pressure and was found satisfactory.

(2) Similar work of modifications to G. and K. valve No. 5 was also carried out. In addition the movable door seatings were also renewed with fresh ones the necessary machining of the surface being carried out at the Mettur workshops.

(3) The runner of machine No. 3 was replaced by a new stainless steel runner and the dismantled runner was reconditioned by welding and grinding.

(4) The special overhaul of No. 2–7,810 K.V.A. power transformer was done the core and coils being dried with hot air and oil replaced.

(5) Nine numbers 110 K.V. bushings of O.C.Bs. and potential transformers were overhauled during the year.

(6) The cooler nest of one of the smaller power transformers was replaced with a new one received as spare.

(7) The water cooling system of all the power transformers wa modified and brought to the system of open discharge whereby the dange of pressure building inside the cooler is eliminated and the circulation o water is capable of being checked visually.

(8) The slip rings of machines 1, 2, 3 and 5 were trimmed.

33. *Penstock, civil and hydraulic works and camps.*—All civil an hydraulic equipments were maintained in a satisfactory condition. Importan works attended during the year were as under :—

(i) Erection of a retaining wall on the right flank of the Mukurti rive below the dam to prevent slowing was in progress.

(ii) Protection works for the penstock on the slopes were in progres at various locations. Additional wooden barricades were being erected a strategic locations along the slope to prevent damage to the penstock b slipping of boulders.

The Singara and Glen Morgan camps were maintained satisfactorily.

34. *Glen-Morgan Power-house.*—Two numbers 375 K.V.A. step u transformers and two No. 11 K.V. feeder cubicles were dismantled fro Glen-Morgan power-house and were sent to Rajahmundry for giving suppl to Ramapadasagar works from the Rajahmundry Paper Mills.

35. *Transmission lines.*—Transmission and distribution lines construct during the year and the total mileages at the end of 1946–47 were as below The Singara-Kuthumunda-Calicut 66 K.V. lines constructed by the Construc tion Branch were taken over for operations.

Voltage.	Constructed during 1946–47.		Total at the end of 1946–47.	
	Single circuit in miles.	Double circuit in miles.	Single circuit in miles.	Double circuit. in miles.
110 K.V.	..	..	..	49
66 K.V.	32	*36	*32	215
33 K.V.	..	..	..	..
22 K.V.	9·16	14·25	277·22	95·77
11 K.V.	+21·52	—14·25	563·09	43·00

**Note.*—Represents the length of Singara-Kuthumunda Calicut lines erected by the Construction Branch a handed over for operation and maintenance during 1946–47.

21·52 miles of 11 K V. service connection lines constructed represent the difference between 24·27 miles actua constructed and 2·75 miles converted to 22 K.V. under the Perianaikenpalayam 22 K.V. changeover. T negative figure of 14·25 miles D.C. lines represents the 11 K.V. lines changed over to 22 K.V. under Periyanaicke palayam changeover.

The route length of L.T. lines in service at the end of the year 1946–47 was 1,064·05 miles.

The tower location T. 217 on Pykara, Coimbatore 110 K.V. line nea the fourth mile stone on the Coimbatore-Mettupalayam load was floode during the heavy rains in the north-east monsoon. Immediate arrangement for the safety of the tower were made by erecting a temporary groin an revetment round the tower base with sand bags and later permanent arrange- ments by way of concerting the tower stubs were carried out.

The 22 K.V. changeover of the Perianaickenpalayam I and II feeders including the branch line to Annur and all minor tap off lines were com- pleted satisfactorily and the lines changed over to 22 K.V. operation erectin a 22 K.V./11 K.V. step down station at Karamadai. All loads beyon Karamadai continues to be fed at 11 K.V. from this sub-station.

About 50 per cent of the 22 K.V. changeover of the Madukkarai-Palgha lines was completed. Balance is expected to be completed in 1947–48.

Work on the 22 K.V. changeover of the Sembatti-Theni Bodi lines t 22 K.V. was almost completed including the changeover of the 11 K. equipments inside the Periakulam and Bodi Municipalities but no availability of necessary 22 K.V. lightning arresters delayed the actual brin ing of the lines into 22 K.V. operation. This is expected to be complete in 1947–48.

36. *E.H.T. sub-stations.*—No. 66 or 110 K.V. sub-station was erected during the year. A list of the E.H.T. sub-stations in the system together with the transformer capacities in 1946–47 is given below :—

Serial number and name of station.	Aggregate transformer capacity. K.V.A.
(1) Kottambettu	2,000
(2) Coimbatore	53,000
(3) Tiruppur	5,250
(4) Udumalpet	5,250
(5) Sembatti	5,250
Total ..	70,750

Proposals for replacing the present 1,750 K.V.A. transformer at Udumalpet by 3,000 K.V.A. ones, with a 66 K.V.A. control O.C.B. has been submitted to Government to meet the anticipated load development in this area.

Three 1,750 K.V.A. transformers ordered were erected at the Sembatti sub-station releasing the three numbers, 750 K.V.A. transformers which are kept ready for being sent to Karur.

The second 2,500 K.V.A. booster at Pollachi sub-station was overhauled and oil replaced.

37. *Distributions.*—The number of distribution transformers erected during the year and the total aggregate capacity is given below :—

Number of new distribution transformers erected during the year.	Aggregate capacity of transformers in column (1) including increase in capacity.	Total number of distribution transformers in service at the end of 1946–47.	Aggregate capacity in service.
(1)	(2)	(3)	(4)
41 Nos.	4,067·5 K.V.A.	426 Nos.	22,465 K.V.A.

38. *Coimbatore Receiving Station.*—The peak load recorded at the station was 33,590 K.W. on 7th June 1946 with Pykara and Mettur in parallel and Pykara giving relief to Mettur. The peak load on account of system loads only was 24,370 K.W. on 22nd March 1947.

In addition to the routine maintenance works, the following important works were carried out :—

(i) The overhaul of all E.H.T. bushings of power transformers and O.C.Bs. except Nos. 2 and 3 auto transformers was completed.

(ii) Four numbers 5,000 K.V.A. transformers (3 Ferranti make and 1 A.C.E.C. make) were overhauled.

(iii) Certain alterations to the feeder take off arrangements on the 22 K.V. bus including provision of an additional bus switch were carried out.

(iv) Two more 22 K.V. kiosks were installed to control P.N.P. I and II feeders.

(v) Four numbers J.B. 721–11 K.V., O.C.Bs. controlling four numbers Mill feeders were replaced by J.B. 438 O.C.Bs. of higher rupturing capacity and the released ones sent for use at Calicut and Cannanore.

(vi) The staggering of holidays of mills on the 11 K.V. side of Coimbatore was relaxed reverting to the original arrangement whereby all the mills observe Sunday as a common holiday from 27th November 1946.

(vii) The A.S.C.U. and creosoting plants for treatment of wood poles belonging to the Forest department were taken over and erected at Coimbatore receiving station for heating wood poles departmentally.

The works programmed for the year 1947–48 are (i) overhaul of autos 2 and 3 and their bushings, (ii) erection and commissioning of the eighth 5,000 K.V.A. transformer which has been already ordered, thereby enabling the A.C.E.C. transformer to serve as an independent spare for 11 K.V. loads, (iii) preliminary arrangements for the erection of the fourth 6,000 K.V.A. auto transformer to be ordered and (iv) erection of a second 11 K.V. kiosk to control the rural loads.

39. *Mills, mill lines and cement works.*—(i) Supply and maintenance were satisfactory.

(ii) Due to labour trouble there were intermittent periods of strikes in almost all the mills and the cement works during the year. There was a general strike in all the mills except one between 12th and 23rd February 1947. The duration of strike was particularly long in the case of Coimbatore Spinning and Weaving Mills, Kaleeswara and Somasundara Mills.

(iii) H.T. supply to Messrs. Brooke Bond (India), Limited, was effected during the year. Supply to Messrs. G. Ramaswami and Company, Oil Mills and Button Factory, Coimbatore, was sanctioned and the extension work was in progress. A proposal for H.T. supply to Messrs. " Titam Paint Works " near Kurichi village, Coimbatore, has been sent up for sanction.

40. *Extensions.*—The following are some of the important extensions completed or almost completed, during the year :—

(1) Extension to Melur and Sutton Tea Factories, Nilgiris division.

(2) Extension to Mayfield Tea Estate, Nilgiris district.

(3) Extension for construction purposes to Pykara dam, Nilgiris district.

(4) H.T. supply to Messrs. Brooke Bond (India), Limited, Coimbatore.

(5) H.T. supply to Messrs. G. Ramaswami and Company, Oil Mills and Button Factory, Coimbatore.

(6) Extension to Naduvar Tea Estates, Anamalais.

(7) H.T. supply to Oil Mills at Dindigul.

(8) L.T. extension to Enamel works at Dindigul.

(9) Extension to Thaimudi Group of Estates.

In addition a number of minor or major extensions for supply mainly for agricultural purposes and a few small industrial loads were carried out during the year in the various parts of the system.

Supply to Moyar from Singara for construction purposes was effected during the year. The 11 K.V. line to Pykara dam for supply for construction purposes was completed.

During the year, 537 extensions at an estimated cost of Rs. 25,23,82[illegible] were sanctioned.

41. *Textile Mills.*—There was no appreciable increase in the textile mill load, as the additional spindles allotted to the Province has not been received. As Government have now accepted the additional allotments, progressive increase in load may be expected probably from 1948–49.

42. *Cement works.*—The Madukkarai ctment works continued to be the largest individual consumer in the systems. The strike which began on 31st March 1946 was called off on the forenoon of 15th May 1946 and was followed by another strike from 5th January 1947 to 14th February 1947. The cement works were permitted to increase their demand up to 2,60[illegible]

K.V.A. during the year. They have also given notice of their requirement of power upto a limit of 3,800 K.V.A. by the end of 1947.

43. *Tea factories.*—The following new tea factories were connected up :—

L.T. tariff :—

(1) Banebatta Tea Factory, Kundah.

(2) New Field Factory of Sri Linga Gounder, Kilkunda.

(3) Kundah Trading Company.

(4) Kundah Plantations Tea Factory.

H.T. tariff :—

(1) Sutton Tea Estate.

(2) Thaimudi Group Tea Estate.

As supply at one point was given to the Thaimudi Group of Tea Factories, individual supply to the Thaimudi factory was discontinued.

(3) Brooke Bond (India), Limited.

One Tea Estate "Bhavani Estate" under the H.T. tariff was disconnected during the year. In a few cases extension works were in progress. Applications for supply to several tea factories were also under investigation.

44. *Other industries.*—The following important industries were connected during the year :—

(i) Ratna Gin and Cotton Press, Dindigul.

(ii) Radhakrishna Mills, Pollachi.

(iii) Arunachala Nadar's Ginning Factory, Kuniamuthur (Coimbatore district).

(iv) Pattiveerampatti Co-operative Coffee Curing Works, Batlagundu (Madura district).

(v) Stanes Manure Works, Tudiyalur (Coimbatore district).

(vi) South India Enamel Works, Dindigul.

45. *Commercial activity.*—In connexion with the 'Grow More Food' campaign a target of 500 well connexions for agricultural purposes was aimed at. Supply lines were erected to 466 wells of which 108 wells coud not be connected as the parties were not ready with their installation to take supply.

Though over 1,300 domestic services were permitted to end of March 1947 supply could be given to only about 650 services.

The following are some of the important schemes sanctioned for the year :—

(1) Naranapuram Extension, Palladam taluk.

(2) Puliampatti and Krishnapuram, Palladam taluk.

(3) Madugappalayam and Chittanpalayam, Palladam taluk.

(4) Andigoundanur and Dumalpatti, Udumalpet taluk.

(5) Kodangipalayam, Palladam taluk.

(6) Ganapathipalayam, Palladam taluk.

(7) Kurumbapalayam and Masagoundanchettipalayam, Coimbatore taluk.

The commercial subdivision investigated the following important extensions :—

(1) Extension to all the villages in connexion with the Palladam Firka Scheme in Coimbatore taluk.

Proposals were sent up and got sanctioned by Government.

(2) Kumbla Firka Scheme, South Kanara district—Report of investigation submitted scheme being finalised.

(3) Avanashi Khadi Centre, Coimbatore—Investigation recently taken up.

(4) Kundah Firka Scheme, Nilgiris district—Government's sanction awaited.

(5) Satyamangalam Scheme—Report being finalised.

(6) Extension to Parli, Ottapalayam and Shoranur—Investigation was completed. The schemes in final shape would be ready for submission early

46. *Agricultural services.*—Four hundred agricultural pumpsets with a connected load of 1,766 K.W. were connected up during the year bringing the total as on 31st March 1947 to 3,293 numbers with a total connected load of 14,873 K.W.

47. *Rural industries.*—Fifty-four small industrial services with a connected load of 417·56 K.W. were connected up during the year bringing the total as on 31st March 1947 to 311 numbers with a total connected load of 4,873·971 K.W. respectively.

48. *Conversion fund.*—No hire purchase loan was availed of by any consumer during the year.

	RS.
Hire-purchase loans sanctioned during 1946–47 ..	Nil.
Hire-purchase loans disbursed during 1946–47 ..	Nil.
Advance from commencement	12,75,338
Recoveries during the year	223
Recoveries since commencement of the system ..	12,64,322

49. *Meter and relay tests and special maintenance.*—Routine tests of meters, relays, etc., were carried out as per programme. The following are works of special note that were carried out in the M.R.T. during the year :—

(i) Special primary injection test on 2,000 K.V.A. Transformer No. 3 at Singara power-house prior to commissioning.

(ii) Investigation tests on 3 phase 20 and 50 amps. meters and acceptance tests on new L. and G. poly phase meters and new M.V. type N.E.I. single phase meters.

(iii) Precommissioning tests on the Perianaickenpalayam I and II feeder 22 K.V. kiosks at Coimbatore R.S.

(iv) Acceptance tests on variable speed M.G. set recently received for M.R.T.

(v) Test and adjustment of the under frequency relay at Coimbatore R.S.

(vi) The rigging up of meter testing kits for Bezwada and Papanasam and two numbers 1,000 K.V.A. loading transformers for Bezwada was completed and the kits despatched to the respective systems.

Special maintenance subdivisions.—The outturn for the year was as under :—

	NUMBERS.
1 Examination of distribution transformers, test check up, minor repairs wherever necessary and pressure test before issue to field	139
2 Periodical overhaul and minor repairs wherever necessary (once in five years)..	93
3 New transformers examined, assembled, dried out and tested before taking to stock	106
4 Major repairs to sick transformers	10
5 Power transformers examined, overhauled and tested..	5

	NUMBERS.
6 Overhaul and repairs to P.Ts., C.Ts., O.C.Bs. and metering sets.	39
7 New metering sets, P.Ts., etc., assembled and tested..	2
8 Major repairs to P.Ts., C.Ts., motors metering sets, O.C.Bs., etc.	5
9 Oil reconditioned and tested—	

	GALLONS.
(*a*) Departmental oil	7,578
(*b*) Non-departmental oil	410
Total ..	7,988

10 Total number of oil samples tested	5,597
11 Miscellaneous over pressure tests on equipments like lightning arresters, motors, etc.	32

The erection of the three numbers 1,750 K.V.A. transformers at Sembatti and the overhaul of the 2,500 K.V.A. 22 K.V. booster at Pollachi substation were carried out by the special maintenance subdivision. In addition, two numbers 1,000 K.V.A. 11 K.V. boosters which were newly received were checked, assembled and dried out, one for issue to the Mettur system and another for use in this system. One number 500 K.V.A. 22 K.V./11 K.V. transformer which was formerly in service at Singara and transferred to Karamadai was also overhauled before use at Karamadai as its I.R. value was found to be low.

50. *Kollegal Scheme.*—The taking over of the Kollegal Panchayat Board Electricity Undertaking by the Government and changing over to Sivasamudaram 25 cycle supply was sanctioned during the year for an estimated amount of Rs. 1·705 lakhs initially rising to Rs. 3·50 lakhs in five years. The Kollegal subdivision was formed in February 1947 and the detailed estimates for the initial stage of work for technical sanction were under preparation.

A load survey in the surrounding villages of Harur, Ramapuram, etc., in Kollegal taluk was also being made with a view to extend supply to these villages on a remunerative basis after the taking over of the Kollegal scheme.

51. *Interruptions and breakdowns.*—There were twenty-six major interruptions and outages—1 on 66 K.V. feeders for 8 minutes, 8 on important 11 and 22 K.V. feeders for more than 30 minutes and 17 on 22 K.V. rural feeders for more than 3 hours. None was however of any serious consequence and supplies were resumed in the quickest time possible.

There was no failure of major equipment during the year except of a few distribution transformers as under :—

Units.	Numbers.
100 K.V.A.	1
75 K.V.A.	2
50 K.V.A.	3
25 K.V.A.	2
10 K.V.A.	Nil

H.T. Metering sets. 2 Nos.

52. *Accidents.*—The details of the electrical and non-electrical accidents in the year were as under :—

Category.	Fatal.	Non-fatal.	Total.
Electrical—			
Employees	2	Nil	2
Non-employees	10	9	19
	12	9	21
Non-electrical—			
Departmental	4	10	14
Non-Departmental	1	5	6
	5	15	20

Compensation was paid for 9 cases during the year. The most unfortunate accident of all was the one that occurred on 11th July 1946 on the second winch haulage at Singara when the haulage rope unexpectedly snapped. There were 5 fatal cases and 10 persons were seriously injured. Medical aid was arranged expeditiously. The cause of snapping of the second winch rope could not be definitely ascertained even though samples were tested for strength, etc. The instructions in vogue and the maintenance practice was found to be satisfactory and it was surmised that the stands of the rope might have been snapping due to internal deterioration not discernable from outside.

This rope was programmed to be changed two years each but it could not be done due to delays in obtaining new ropes due to war conditions.

Separate periods for renewal of ropes has since been decided on and maintenance scheme made more straight in consultation with leading manufacturers and important users of wire ropes.

53. *Stores.*—There were seven stores in the system during the year including the Central Stores at Coimbatore with a total reserve limit of Rs. 18,50,000. The working of the stores was generally satisfactory. Periodical inspections of the divisional and sub-stores were conducted by the Stores Superintendent with beneficial results while the stock verifier verified the following stores :—

(1) Singara.
(2) Glen Morgan.
(3) Coimbatore.

54. *Administration.*—A new subdivision consisting of 1 Assistant Engineer and 1 Junior Engineer was formed during the end of the year in connexion with the taking over of Kollegal distribution. Sanction for additional staff in connexion with the increased commercial and construction work had been sought for and was awaited. Similarly tht post of an Assstant Engineer for the maintenance of Calicut lines awaited sanction of Government.

Proposals were submitted for the creation of the post of a Technical Assistant to the Superintending Engineer, Pykara Electricity System, of the cadre of an Assistant Engineer for the Central Office to cope with the increased technical scrutiny consequent on the sanction of large number of schemes, etc. A separate "Commercial Section" has been formed in the central office from August 1946 to cope with the increased work to push through schemes and proposals for extension of supply to agricultural pump sets and other industrial and domestic services. Additional Junior Engineers

have also been recently appointed in connexion with the investigation of extension proposals and constructions. This staff will be merged in the construction division and additional commercial subdivisions asked for and referred to above.

55. *Programme of work for* 1947–48.—(i) Special overhaul of No. 1 power transformer at Singara to improve the insulation resistance of the windings will be carried out.

(ii) Erection of switch gear and power transformers at Singara and Calicut are in hand, and as soon as they are ready permanent supply at 66 K.V. will be given at Calicut. Erection of transformers at Cannanore will then be taken and permanent supply afforded soon after, probably in September 1947.

(iii) The eighth 5,000 K.V.A. transformer ordered for Coimbatore is likely to be received in 1947–48 and will be erected departmentally enabling the A.C.E.C. transformer to be an independent spare for 11 K.V. loads only.

(iv) An estimate has been recently submitted to Government for the installation of a fourth auto-transformer (6,000 K.V.A. capacity) and necessary switchgear at R.S. Necessary order for the equipments will be placed.

(v) The detailed overhaul of the 6,000 K.V.A. auto-transformer 2 and 3 at Coimbatore will be taken up one by one and completed.

(vi) The erection of a second 11 K.V. kiosk to control the 11 K.V. rural loads at Coimbatore will be completed.

(vii) Improvement to mill lines and the balance of segregation of rural from industrial loads in Coimbatore section for which sanction was received only in the last quarter of 1946–47 will be completed.

(viii) A double circuit tie line connecting up Pollachi lines and Madukkarai substation will be erected to facilitate changeover of the Madukkarai–Palghat loads on to Pollachi lines releasing the Coimbatore–Madukkarai solely for supply to the cement works.

(ix) The 22 K.V. changeover of the Madukkarai-Palghat lines including all spur lines and a 22 K.V./11 K.V. station at Palghat will be completed before end of 1947–48.

(x) The 500 K.V.A. 22/11 K.V. transformer that will be released from Calicut when the Calicut lines are energised at 66 K.V. will be erected at Madukkarai substation first in place of the 250 K.V.A. unit and then this 500 K.V.A. unit and the existing 500 K.V.A. unit will be erected at Palghat after Madukkarai-Palghat 22 K.V. changeover is completed. When Cannanore gets 66 K.V. supply, the 22/11 250 K.V.A. released from there will be erected at Karamadai substation as a spare for the existing 500 K.V.A. unit.

(xi) The bridging of the gaps between Somanur and Pumalur and between Tiruppur and Palladam will be completed and transfer of loads from Coimbatore R.S. to Tiruppur substation effected.

(xii) The 22 K.V. changeover of the Sombatti-Theni-Bodi lines will be completed.

(xiii) The power transformers at Udamlapet and Tiruppur substations will be taken up for detailed overhaul.

METTUR SYSTEM.

56. *General.*—The year under review was the tenth year of operation of the system. Substantial increase in load was recorded since the relaxation of restrictions imposed during the Mettur emergency. Increase in revenue was also recorded in spite of the restrictions and the rebates given to licensees.

The peak load of the system reached 23,850 K.W. and the units generated 96·24 mllions as against 19,400 K.W. and 88·7 millions of previous year. 17·8 million units were purchased from Pykara during the year. The number of units sold was 100·5 millions against 98·8 millions in the last year. The revenue earned was Rs. 39·47 lakhs as against Rs. 34·39 lakhs during the last year. The total connected load on the system was 76,732 K.W. against 65,029 K.W. in the last year representing an increase of 15 per cent. The Dalmia Cement Factory continued to be the biggest individual industrial load in the system closely followed by the Mettur Industries and Mettur Chemicals. One hundred and thirty-one major extensions costing Rs. 38·70 lakhs and 252 minor extensions costing Rs. 7·7 lakhs were sanctioned during the year.

57. *Water conditions.*—The Mettur reservoir which touched the phenominally low level of 676·4 M.S.L. on 20th January 1946 began to rise steadily with the advent of the south-west monsoon and was full in August 1946. The reservoir continued at full level till the end of December 1946.

58. *Mettur Power-house.*—The operation and maintenance of the power house was satisfactory. The failure of both south-west and north-east monsoons necessitated to shutting down of the plant for fifteen days in January 1946. Generation thereafter was confined to only one unit, due to irrigation closure; the balance of power being obtained from Pykara. The water conditions in Mettur reservoir improved in the latter part of June 1946 the gross head at the turbine increasing from 51·15 feet on 1st April 1946 to 92·3 feet on 29th June 1946. With the commencement of irrigation discharge on 28th June 1946 all the three machines were put into service. The systems were separated on 29th June 1946 as the Mettur machines were able to take the peak load of the system.

The restrictions which were imposed in the beginning of Mettur emergency were continued till June with slight relaxations in April and May made possible by slight improvements in the water conditions at Mukurti and Papanasam. During the emergency 80 per cent of the Mettur system needs were met by availing relief from Pykara.

Restrictions were progressively removed as water conditions improved until all were relaxed from 12th July 1946.

There was a case of supply failure for the station due to failure of the field of one unit in service. As the system was in parallel with Pykara there was no interruption on the 66 K.V. feeders. Supply to the station was resumed in three minutes, the 11 K.V. feeders in six minutes and 22 K.V. supply in 15 minutes.

The fourth generating set which completes the final stage of Mettur Power House was erected and acceptance tests were conducted satisfactorily on 27th and 28th October 1946. The machine was taken over for commercial service from 30th October.

The third 2,000 K.V.A. transformer which was received in July 1946 was commissioned successfully on 8th August 1946 in the place of No. 2 Salem transformer which was taken out for the 5-yearly overhaul.

The examination of No. 2—2,000 K.V.A. Salem transformer revealed that the low-tension windings in the middle limb of the unit had moved axially and the winding had suffered damage due to distortion. The complete hub was replaced by a spare one obtained from the Papanasam system. To prevent the exial upward movement of the low-tension coils special clamps were designed and fitted up. The transformer was recommissioned satisfactorily. The work of replacing defective control cables in the power-house was continued and nearly 90 per cent completed.

59. *Load development*.—The following statement shows the growth of load and revenue since the beginning of operation of the system :—

Year.	Peak load in K.Ws. of the systems.	Units generated in millions.	Revenue. RS. IN LAKHS
1937-38 (5 months) ..	5,700	17·40	3·45
1938-39	7,700	44·00	11·03
1939–40	10,900	46·49	13·34
1940–41	12,300	60·42	18·19
1941–42	14,000	71·67	21·75
1942–43	15,300 *	81·45	24·00
1943–44	16,000 †	97·32	27·27
1944–45	18,915 ‡	104·92	30·78
1945-46	19,400 §	88·8 plus 23·68 ¶	34·39
1946–47	23,850 ‖	96·21 plus 17·85 ¶	39·47

* 23,400 with relief to Pykara.
† 25,200 do.
‡ 26,120 do.
§ 27,200 with relief to Pykara.
‖ 35,000 do.
¶ Purchased from Pykara.

60. *Financial results*.—The table below gives the financial working of the system for the accounting year :—

	RS. IN LAKHS.
Capital outlay including arrears of interest	2,30,22,864
Gross revenue	39,46,754
Operation and maintenance expenditure	13,99,213
Depreciation Fund	5,43,048
Special Reserve Fund	2,17,219
Total expenses	21,59,480
Net revenue	17,87,274

61. *Connected load*.—The connected load in the system at the end of the year under different categories was as follows :—

Serial number and description of load.	Connected load in K.W.
I. * Industrial H.T. supplies—	
(*a*) Textiles	6,235
(*b*) Cement	2,270
(*c*) Chemicals	1,666
(*d*) Steel rolling mills	2,408
(*e*) Metal	385
(*f*) Oil and other industries	165
(*g*) Sugar	353
(*h*) Licensees—	
(1) Municipalities	4,730
† (2) Others	40,326
II. Industrial L.T. supplies	5,383
III. Irrigation and agriculture	5,956
IV. Domestic heat and power	2,363
V. Commercial heat and power	93
VI. Public water-works and sewage pumping	92
VII. Street lighting	189
VIII. Miscellaneous (Railways and Madras Electric Tram at L.T. including Government Departments)	4,118
	76,732

* Figures under this item include the connected load of such industries in licensees area.
† Excludes H.T. industrial supplies.

62. *Transmission lines*.—The transmission lines were maintained satisfactorily except for two major breakdowns, one on the Mettur-Singarapet 66/110 K.V. line and the other on the Pakala-Chandragiri 11 K.V. line, and a few minor breakdowns on secondary lines.

About 13·81 miles of 11 K.V., 13·775 miles of 22 K.V. and 0·30 miles of 33 K.V. lines were added during the year bringing the total number of miles of transmission lines to the following :—

Voltage.	Total single circuit.	Total double circuit.
	MILES.	MILES.
66 K.V.	188·5	228·5
33 K.V.	178·2	..
22 K.V.	365·1	..
11 K.V.	428·3	1·8
Total ..	1,160·1	230·3

The total route length of the low-tension lines both 3-phase and single-phase, as on 31st March 1947 was 558·5 miles.

63. *E.H.T. sub-stations.*—There were 24 E.H.T. sub-stations with an aggregate transformer capacity of 52,400 K.V.A. as follows :—

Serial number and name of sub-station.	Available transformers. NOS.	K.V.A.	Aggregate capacity.
1 Erode ..	3	1,000	3,000
2 Karur ..	2	500	1,000
3 Trichinopoly ..	3	2,500 }	11,500
	2	2,000 }	
4 Tanjore ..	4	750	3,000
5 Papanasam ..	3	500	1,500
6 Tiruvarur ..	2	2,500	5,000
7 Negapatam ..	2	2,500	5.000
8 Singarapet ..	2	500	1,000
9 Kariamangalam ..	1	250 and }	
	1	100 }	350
10 Tiruppattur ..	2	250 and }	
	1	500 }	1,000
11 Ambur ..	2	500	1,000
12 Vadakathipatti ..	3	500	1,500
13 Vellore ..	2	1,250 }	
	2	500 }	3,500
14 Chittoor ..	2	250 }	
	1	100 }	600
15 Pakala ..	2	250	500
16 Ranipet ..	2	250	500
17 Kaveripauk ..	2	250 }	
	1	100 }	600
18 Conjeeveram ..	4	250	1,000
19 Arkonam ..	2	500	1,000
20 Tiruvannamalai ..	2	500 }	
	1	250 }	1,250
21 Polur ..	2	250	500
22 Arni ..	2	250	500
23 Vetavalam ..	2	250 }	
	1	100 }	600
24 Villupuram ..	4	1,750	7,000
Total ..			52,400

The sub-stations were maintained satisfactorily.

At the Trichinopoly sub-station one 66 K.V. B.T.H. oil filled bushing was fitted up in place of a damaged A.C.E.C. bushing of 2,000 K.V.A. transformer. A Crypton rectifier was erected at the sub-station for continuous trickle charging of the station battery. Interconnecting ducts between the condensers were provided to keep the idle machine warm and free from moisture by circulating the hot air from the running machine.

To meet the increasing load demand at various substations, new larger capacity transformers were erected in some, others were interchanged and

in others unconnected spare transformers were connected for parallel service as detailed below :—

A new 2,500 K.V.A. transformer was commissioned at Negapatam releasing 2 Nos. 750 K.V.A. units for service, one at Tanjore and the other to Kayattar in the Papanasam system. A third 1,750 K.V.A. transformer was commissioned at Villupuram and a fourth 1,750 K.V.A. unit was ready for service.

A second 1,250 K.V.A. unit was commissioned at Vellore sub-station for feeding 33 K.V. load. Paralleling arrangements for connecting 2—2,500 K.V.A. units for feeding Vellore licensee's load were completed during the year. Paralleling arrangements for the third 500 K.V.A. transformer at Papanasam were completed and the transformer commissioned in parallel with the other two units.

The 2 Nos. 100 K.V.A. transformers at Polur were replaced by 2 Nos. 250 K.V.A. transformers. Two 500 K.V.A. transformers were received at Tiruvannamalai and one was connected to the 33 K.V. side and the other kept as spare for both 33 K.V. and 11 K.V. loads.

64. *Distribution.*—There were 259 distribution transformers in service with an aggregate transformer capacity of 12,888 K.V.A.

65. *Commercial activity.*—The commercial subdivision with one Assistant Engineer and three Junior Engineers continued to be very busy. During the year, proposals for 159 major extensions involving Rs. 74,54,940 were sent up for sanction out of which 131 extensions costing Rs. 38,70,600 were sanctioned. The following figures give the load details of the minor and major extensions sent up and sanctioned :—

Major Extensions

Particulars.	Estimated cost of extensions RS.	Number of extensions.	Number of service. Agricultural	Industrial	Misc. H.S.C.	Load. Agricultural	Industrial	H.S.C.
Major extensions sent up.	74,54,940	159	2,275	191	949	19,632	4,933	470
Major extensions sanctioned	38,70,500	131	965	158	172	8,886	3,908	80

Minor Extensions and House Service Connections.

Particulars.	Estimated cost of extensions RS.	Number of extensions.	Number of services. Agricultural	Industrial	H.S.C.	Connected load. Agricultural	Industrial	H.S.C.
Minor extensions sent up.	6,79,942	217	359	128	180	2,040	2,063	90
Minor extensions sanctioned	7,74,852	252	425	151	67	2,426	2,482	33
House Service Connections sanctioned by S.E. Mettur Electricity System	2,62,780	..	..	3,754	..	..	1,880	..

The extensions that were yet to be scrutinized as on 1st April 1947 were--

				Amount. RS.
1	Major proposals	79 Nos.	15,164 H.P.	45,49,200
2	Minor proposals	51 „	555 „	1,66,500

66. *Agricultural services.*—286 Nos. agricultural services with a connected load of 1,528·6 H.P. were added to the system during the year bringing the total number of services to 1,488 and connected load to 8,024·0 H.P.

In the case of 130 agricultural services supply was ready but the parties were not able to avail of it for want of pumpsets or piping.

67. *Rural industries.*—75 Nos. small industries totalling 1,219·5 H.P. were added during the year. The total number of small industries and the connected load as on 31st March 1947 were 370 Nos. and 6,303·5 H.P., respectively.

68. *Conversion fund.*—Applications were received from 20 prospective consumers for the supply of pumpsets and motors on hire purchase system. Their solvency was verified and hire-purchase agreements were under scrutiny.

69. *Meter and relay testing and special maintenance.*—The M.R.T. sub-division continued to be busy throughout the year. A comparative statement showing the volume of work turned out each year for the past three years is given below. The statement clearly shows the increase in volume of work handled during the year under consideration.

		1944–45.	1945–46.	1946–47.
1	Single phase meters new	196	738	1,295
2	Single phase meters (periodical and repaired)	1,449	2,929	2,190
3	Three-phase meters new	Nil.	50	23
4	Three-phase meters (periodical and repaired)	62	149	204
5	H.T. meters	75	108	102
6	Relays	239	233	305
7	Miscellaneous tests for year	393	678	883
	Total	2,414	4,885	5,002

A new drive for replacing on mass scale the meters due for test by tested meters by M.R.T. staff was initiated during the year. About 1,000 meters due for test were replaced during the year. It is expected that with this new drive the accumulated arrears of the previous years will be cleared within a few months.

The special maintenance subdivision continued to be heavily worked as in previous years. The following are some of the major works handled during the year :—

(1) One 2,500 K.V.A. E.E. Co., one 1,250 K.V.A. B.T.H. and one 1,750 K.V.A. B.T.H. transformers were erected and commissioned satisfactorily at Negapatam, Vellore and Villupuram, respectively. Another new 1,750 K.V.A. unit (fourth) was examined, dried out, tested and kept ready for service at Villupuram.

(2) 2 Nos. 1,000 K.V.A. voltage regulators were erected and commissioned satisfactorily at Arkonam and Conjeeveram, respectively.

(3) 4 Nos. 500 K.V.A. 66/33-11 K.V. Ferranti transformers were overhauled at Vellore and Vadakathipatti.

(4) One 500 K.V.A. 33/11 K.V. Parsons transformer and one No. 500 K.V.A. B.T.H. transformer at Papanasam sub-station was overhauled, dried out and recommissioned satisfactorily.

(5) 2 Nos. 100 K.V.A. and 1 No. 250 K.V.A. 33/11 K.V. transformers were overhauled, dried out and recommissioned in Vellore area.

(6) 8 Nos. 66 K.V. and 33 K.V. power transformers in the system were dismantled and packed for despatch to other sub-stations.

(7) 3 Nos. 66 K.V. Oil Circuit Breakers and 2 Nos. 33 K.V. Oil Circuit Breakers were overhauled at Trichinopoly, Tanjore and Tiruvannamalai sub-stations.

(8) 42 Nos. 66 K.V. and 44 Nos. 33 K.V. oil filled bushings of power transformers and Oil Circuit Breakers were reconditioned.

(9) 42 Nos. new distributions transformers were dried out and got ready for service. 13 Nos. old distribution transformers were reconditioned and got ready for service.

(10) One 22 K.V. and one 11 K.V. potential transformers were rewound and got ready for service.

70. *Interruptions and breakdowns.*—There were two major breakdowns of transmission lines during the year.

There was an interruption to supply the whole of the northern area for 23 hours 20 minutes from 3-20 hours on 16th November to 2-40 hours on 17th November due to Tower 115 near Thoppur on the Mettur-Singarapet 66 K.V. line being washed away by unprecedented floods in the Thoppur. Supply was resumed in the first instance by stringing the line between T. 114 and T. 116 and then two temporary loop lines were erected and double line operation resumed between Mettur and Singarapet from 27th November.

Due to the uncertain nature of the course of Thoppiar, it was decided to deviate the line for Tower No. 113 to 124, to avoid similar danger in future. Work on the deviation has since been completed and regular supply over the new line given from 3rd July 1947.

Reinforcing of the Mettur-Singarapet 66 K.V. line for 110 K.V. operation was completed for both feeders between T. 1 and T. 109 and T. 140 and T. 180.

71. *Accidents.*—Twenty-eight accidents, as detailed below, occurred during the year :—

Category.	Fatal.	Non-fatal.	Total.
Departmental	1	3	4
Non-departmental	7	17	24
Total ..	8	20	28

72. *Stores.*—During the year 1946–47 a separate sub-stores was formed at Kuppam and a Storekeeper, II Grade posted.

To meet the heavy demands of the construction works at Bhavani and Namakkal construction subdivisions, two sub-stores were opened in those places.

The stock verification of the Mettur Central Stores was completed by December 1946. The third cycle of verification of the sub-stores was taken up at Erode, Arkonam, Rasipuram, etc., and was in progress. A Stores Superintendent for the system has since been sanctioned.

73. *Workshops.*—The total outturn of the workshops manufacturing line materials was Rs. 6·25 lakhs and that of the tower making section was Rs. 4·2 lakhs. The average labour strength was 250 in the main workshops and about 180 in the tower making section.

Manufacture of 66, 33, 22 and 11 K.V. A.B. switches and distribution boxes, were the main items of work handled, in the General shop.

A 2½-ton gun metal taper nose piece for the Tambraparni dam, Glenfield and Kennedy needle value was satisfactorily made. This is the largest casting in gun metal attempted in the shops so far. Manufacture of single circuit towers for the 110 K.V. Bezwada-Rajahmundry line continued to be the main activity of the tower manufacturing section. Testing of sample towers manufactured departmentally and by contractors were done, as and when required by the Technical office. Three sheds each of 85′–6″ × 35′–6″ were constructed for the workshop expansion scheme. An automobile section has been opened for repairing lorries, body building and reconditioning of automobile machinery in view of the large number of vehicles that are being acquired for use in the system. A scheme for the expansion of the Mettur workshops was submitted to Government.

74. *Administration.*—To handle the large volume of construction work in the 3 division, three construction subdivisions were formed one each in the Vellore, Trichinopoly and Mettur divisions with headquarters at Tiruppathur, Namakkal and Bhavani, respectively.

The Divisional Electrical Engineer, Mettur Power House division, was relieved of his charge of the workshop so that he can devote his whole time to the power house operation. A separate Divisional Engineer was put in charge of the workshops in view of its growing importance and increasing work.

The Construction subdivision, Mettur and the Civil subdivision, Mettur, were also attached to the Workshop division.

75. *Programme for* 1947–48.—The following works are programmed:—

(1) Extension of supply to South-Kolar Gold Mines, Kuppam extensions. This is expected to be completed this year.

(2) Changeover of the Conjeeveram-Chingleput line from 11 K.V. to 33 K.V. will be taken up and completed.

(3) Extensions of telephone line from Tharamangalam to Omalur.

(4) Servicing of 1,000 K.V.A. booster regulator at Mohanur.

(5) Construction of additional 66 K.V. and 22 K.V. bays at Villupuram for the fourth 1,750 K.V.A. transformer.

(6) Erection of three numbers 22 K.V. control kiosks at Villupuram.

(7) Increasing transformer capacity at various sub-stations by effecting changes as already ordered and on receipt of equipment on order.

(8) Erection of 2,500 K.V.A. booster regulators at Salem and Villupuram.

(9) Completion of quarters, at Mettur Dam, sanctioned as 1946-47 Part II scheme.

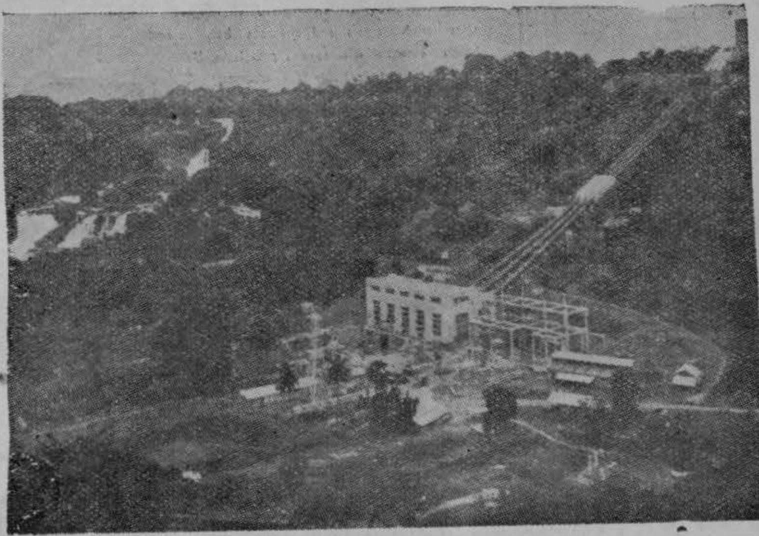
PAPANASAM SYSTEM.

76. *General.*—The year under review was the third year of operation of the Papanasam Electricity System. All the three generating units at the power-house were working satisfactorily. The 66 K.V. line from Papanasam to Travancore was put into commercial operation in September 1946 and a bulk load of 3,000 K.W. was being supplied. Besides a seasonal load to the extent of 700 K.W. was supplied during the period from the middle of November 1946 to the end of January 1947.

The peak load of the system reached 14,000 K.W. which is the full station capacity, against 9,800 K.W. during the last year. The restriction in the supply of power imposed due to low water conditions in the early part of 1946 were removed in stages as flow improved towards the middle of the year and eventually the system was able to work independently. Towards the end of the year there were good freshes in the Thambaraparni river. The Papanasam lake level was temporarily raised by 5 feet by putting up a dwarf wall with flash board over the spillway in time for the North-east monsoon and additional water stored.

The number of units generated during the year was 56·62 millions as against 47·212 millions last year. This includes 2·1 millions of units sold to Pykara system. 5·49 million units were purchased from Pykara system during the year. The total units distributed and sold were 52·39 millions.

The revenue earned during the year was Rs. 19·50 lakhs against Rs. 17·00 lakhs in 1945–46. The total connected load of the system was 34,318 K.W. against 27,473 K.W. in last year.



PAPANASAM PENSTOCK AND POWER HOUSE

77. *Water conditions.*—Till the middle of June 1946, the inflows into the Papanasam lake were poor and Papanasam and Pykara systems had therefore to be worked in parallel for a major portion of the period. The generation at the Papanasam power station had to be limited to the extent of the inflows into the lake and in the Servalar and any special irrigation discharges. The non-impoundable water at the diversion weir was utilized to the extent possible whenever there were occasional rains.

Water conditions gradually improved from the end of June 1946 and the north-east monsoon was favourable. The 10 per cent voluntary cut in consumption imposed on consumers from 25th February 1946 was withdrawn from 22nd May 1946.

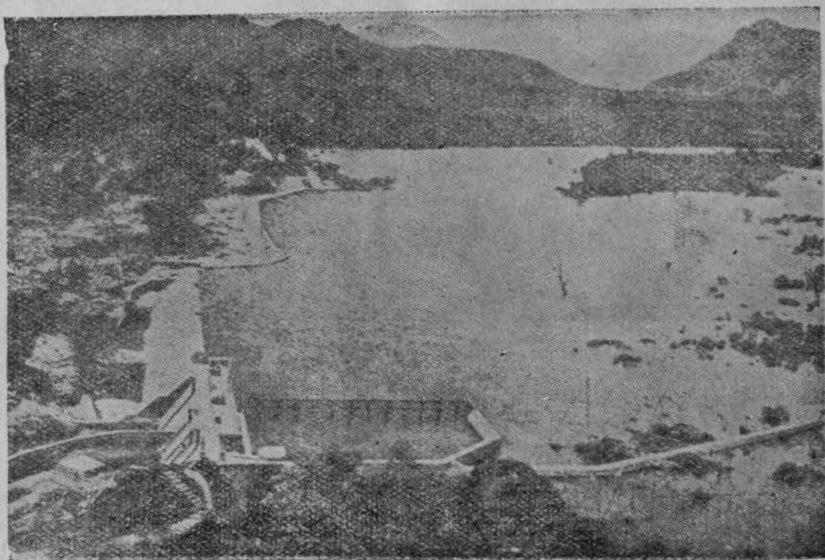
In order to avail of additional storage both for irrigation and power purposes, a dwarf wall and flash board fittings were put up over the spillway at the Dam and the level raised to 855 feet from 850 feet surplus level. An additional storage of about 400 m.c.ft. was thus obtained. There were good rains in December 1946 and the lake began to surplus from 2nd December 1946 and continued so till the middle of February 1947. The maximum level reached was 858·95 feet on 30th January 1947. This temporary impounding hampered somewhat the construction of permanent spillway gates at the Dam. To facilitate the works, the lake had to be depleted to reduce the level to 844 feet. Owing to the favourable monsoon, no special discharges for irrigation purposes were asked for by the Public Works Department. Hence the systems were run in parallel from 13th February 1947 giving as much relief as possible to the other systems. The required level of 844 feet was touched by 20th March 1947 and thereafter this system was running independently catering to its system needs only.

The comparative figures of lake level, storage and rainfall in the catchment area are given below :—

Area.	Rainfall in inches.	
	1945–46.	1946–47.
Richmond Park	75·28	101·58
Thulukkanmottai	95·98	124·61
Dam Camp	60·12	94·68
Papanasam Camp	63·19	76·26

Area.	Rainfall in inches. 31st March 1946.	31st March 1947.
Lake Level	805·00 ft.	840·74 ft.
Storage	2,068·50 m.c.ft.	3,893·44 m.c.ft.

The maximum level reached during the year was 858·95 feet and the lowest level was 770·08 feet.



PAPANASAM DIVERSION WEIR AND FOREBAY

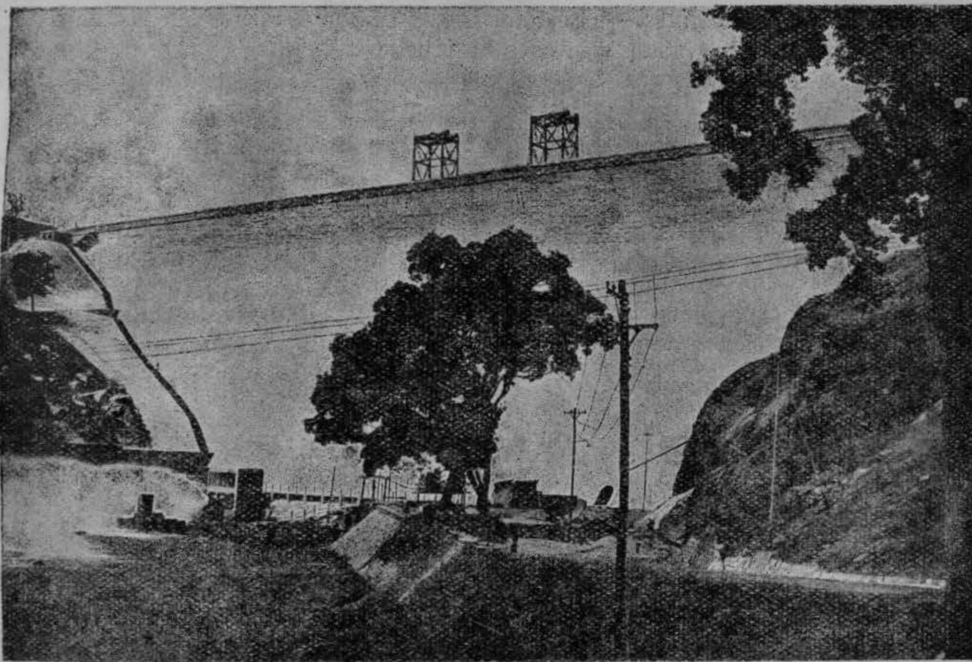
78. *Power-house, dam and civil works.*—The generating station at Papanasam was working satisfactorily catering normally to the system needs. There was a total interruption of supply for 7 minutes in August 1946 due to trouble in No. 2 cooling water pump.

The Travancore 66 K.V. feeder was brought into beneficial use by the middle of September 1946, when the Kundara station load of about 2,000 K.W. in the Travancore State was fed from Papanasam. Subsequently the Mavellikara station load of 1,000 K.W. was also changed over making a total of 3,000 K.W. as per the limit prescribed in the agreement with the Travancore Government. Further, a seasonal load of 700 K.W. was supplied to the Travancore Government from the middle of November 1946 to 31st January 1947 as water conditions were favourable. The maximum load recorded in this feeder was 4,050 K.W.

Consequent to relaxations and additional bulk loads and normal expansion, the system peak reached the figure 14,000 K.W. the full capacity of the station.

Pasumalai receiving station.—One of the 3,000 K.V.A. transformers at Pasumalai which showed poor insulation resistence was reconditioned and renewed with fresh oil and commissioned. The transmission and telephone lines were maintained satisfactorily.

The extensions work at Pasumalai sub-station relating to the Synchronising equipment were completed except for the erection of the 66 K.V. bus coupler Oil Circuit Breakers.



TAMBRAPARNI DAM FROM BELOW

79. *Load development.*—The development of load and revenue since the commencement of the operation of the system was as follows :—

Year.	Peak load.		Units generated in millions.	Gross revenue.
	K.W.		K.W.H.	RS. IN LAKHS.
1944–45 ..	8,700	..	21·265 *plus* 21·979 *	13·05
1945–46 ..	9,800 †	..	47·212 *plus* 7·783 *	17·00
1946–47 ..	14,000	..	56·62 *plus* 5·491 *	19·56

* Purchased from Pykara. † 14,200 K.W. Station peak when in parallel with Pykara.

The restriction and control orders on domestic loads were relaxed to a certain extent but supply could not be effected to all the intending consumers due to shortage of meters and other service connection materials.

80. *Financial results*—

	RS.		RS.
Capital outlay	1,84,53,543	Depreciation fund ..	88,909
Gross revenue	19,66,625	Special reserve fund ..	35,564
Operation and maintenance expenses	6,96,384	Total expenses	8,20,857
		Net revenue	11,45,768

81. *Connected load.*—The connected load in the system as on 31st March 1947 under different categories was as follows :—

	K.W.		K.W.
1. Industrial high voltage—		(*f*) Small workshops ..	61
(*a*) Textiles	5,072	(*g*) Cinemas	49
(*b*) Oil mills	335	3. Agricultural	759
(*c*) Supplies in bulk to distribution licensees—		4. Domestic (light and fans) ..	1,798
(*a*) Municipal	7,575	Domestic (heat and power) small power	73
(*b*) Other than municipalities	16,961	5. Commercial lighting flat rate services	36
2. Industrial low voltage—		6. Public water works and sewage	60
(*a*) Rice mills	1,171	7. Street lighting	74
(*b*) Oil Mills	60	8. Miscellaneous	Nil.
(*c*) Coffee grinding	16		
(*d*) Pumpset (Water) ..	74	Total connected load ..	34,318
(*e*) Ginning	144		

82. *Transmission lines.*—The total length of the transmission and distribution lines in the system was as shown below :—

Voltage.	Constructed during 1946–47. Single circuit in miles.	Double circuit in miles.	Total at the end of 1946–47. Single circuit in miles.	Double circuit in miles.
66 K.V. lines ..	..	..	102·59	70·43
33 K.V. lines ..	..	..	·28	..
22 K.V. lines ..	..	..	40·28	..
11 K.V. lines ..	7·31	..	127·25	9·85

The total length of L.T. lines was 137·2 miles.

83. *Power transformer station.*—The following table gives details of the 66, 33 and 22 K.V. power transformer station in the system :—

Sub-stations.	Transformers.	Total capacity. K.V.A.
1 Tuticorin S.S.	3 Nos. 1,250 K.V.A.	3,750
2 Koilpatti S.S.	3 Nos. 1,000 K.V.A.	3,000
3 Sattur S.S.	2 Nos. 250 K.V.A. (1 No. spare 100 K.V.A.).	500
4 Virudunagar S.S.	2 Nos. 1,000 K.V.A. for 33 K.V. supply.	2,000
	1 No. 1,000 K.V.A. for 11 K.V. supply.	1,000
5 Madura S.S.	3 Nos. 3,000 K.V.A. for 11 K.V. supply.	9,000
	1 No. 3,000 K.V.A. for 22 K.V. supply.	3,000
6 Gurumurthinaickenpatti S.S. ..	2 Nos. 250 K.V.A.	500
7 Rajapalayam S.S.	3 Nos. 500 K.V.A.	1,500
8 Sivaganga S.S.	2 Nos. 250 K.V.A.	500
	Total ..	24,750

Aggregate transformer capacity including the spare units 24,750 plus 1,600=26,350 K.V.A.

84. *Distributions.*—The total number of transformers in service for distributions were 83 with an aggregate capacity of 4,142·5 K.V.A.

85. *Extensions.*—Preliminary investigations of the following major extensions involving construction of 33 and 11 K.V. lines and sub-stations were carried out and necessary reports prepared :—

(1) East Tinnevelly Extensions, (2) North-west Tinnevelly Extensions, (3) West Tirumangalam Extensions, (4) Nanguneri Extensions and (5) K.V. Extensions to Tinnevelly for feeding the Cement Factory, Carbide Factory, Textile Mills, etc., near Tinnevelly. The approximate cost of extension for supply covered by these major schemes is Rs. 80 lakhs and the area to be served covers the taluks of Srivaikuntam, Tiruchendur, Sankarankoil, part of Tenkasi, Tirumangalam, Nanguneri, and part of Tinnevelly. Proposals in final shape for the fifth scheme referred above have already been submitted to Government for sanction and final proposals for the other schemes are under preparation.

Besides the above, 87 extension proposals for a total estimated cost of Rs. 19·87 lakhs involving extension of supply of power to 3·314 H.P. agricultural, 1,965 H.P. industrial, and 398 K.W. of lighting loads were investigated and finalized for sanction during the year.

Of these, sanctions were received for 16 extensions of estimated cost of Rs. 5·16 lakhs and those for the rest are awaited.

Besides many minor extensions, 10 major extensions costing about Rs. lakhs were completed.

The following works were also carried out :—

(1) Construction of Divisional Electrical Engineer's Office at Pasumalai.

(2) Construction of additional staff quarters and garage at Pasumalai, stores, telephone and office room at Sivakasi and conversion of one block of 4 ' F ' type quarters into permanent ones at Papanasam.

(3) The telephone line below the 11 K.V. Tenkasi line was extended from Tenkasi to Shenkottah to facilitate the operation and maintenance of the Travancore line pending the construction of the permanent separate telephone line entrusted for execution to the Telegraph department.

86. *Agricultural services.*—Seventy-nine agricultural pumpsets with a connected load of 271·9 K.W. were connected up during the year bringing the total as on 31st March 1947 to 221 numbers with a total connected load of 750.8 K.W. respectively.

87. *Rural industries.*—Twenty-five industrial services with a connected load of 298 K.W. were connected up during the year bringing the total as on 31st March 1947 to 145 numbers with a total connected load of 1,574 K.W. respectively.

88. *Accidents.*—Seventeen accidents occurred during the year as follows :—

Category.	Fatal.	Non-fatal.	Total.
Departmental	..	2	2
Non-departmental	11	4	15
		Total ..	17

89. *Conversion fund.*—No hire purchase loan was sanctioned during the year, nor is any balance outstanding.

90. *Mills.*—In four of the textile mills, viz., Meenakshi, Mahalakshmi, Kothandaram and Raja Mills, Madura, there was stoppage of work for some days due to strikes. Two of them resumed normal work. The remaining two, viz., Kothandaram Mills and Messrs. Rajah Mills had not resumed work at the close of the year. The Southern Oil Mills, Virudhunagar, ceased working for the present.

91. *Meter and relay testing and special maintenance.*—The outturn during the year in the meter and relay testing section and the special maintenance section attached to it was as follows :—

	NUMBERS.
(1) Meters tested (single and three phases)	1,149
(2) Relays tested	61
(3) Other instruments tested	477
(4) Transformers overhauled	43
(5) Oil samples tested	1,274
(6) Telephones attended	89

The special maintenance subdivision attended to the following works :—

(1) The 250 K.V.A. transformer at Sattur was overhauled.

(2) The 200 K.V.A. transformer that failed at Kalligudi was examined for damages inside and cable-box fitted up and re-commissioned into service

(3) The auto-transformers of condensors 1 and 2 at Madura were overhauled.

(4) The 3 Nos. 250 K.V.A. transformer at Sivaganga were overhauled

(5) The Madura second circuit 66 K.V. oil circuit breakers bushings were overhauled.

The Special Maintenance subdivision was closed by 30th September 1946 and the balance of works done by the special maintenance section was attached to the meter and relay testing. The 1,250 K.V.A. transformer received at Virudhunagar from Villupuram was erected on the plinth and overhauling was in progress. Additional transformer installations were carried out at the following stations :—

(a) The 33 K.V. bay at Rajapalayam substation was extended and the third 500 K.V.A. transformer was connected up permanently thus raising the station capacity to 1,500 K.V.A.

(b) The 33 K.V. bay at Gurunaickenpatti was extended and the second 250 K.V.A. transformer was connected up.

In order to facilitate the civil works being taken up in connexion with the second circuit extensions, i.e., permanent R.C.C. bays at Virudhunagar substation temporary structures were put up below the 66 K.V.A. lines towards Madura and two numbers 1,000 K.V.A. transformers were connected up for feeding the 33 K.V. side load. The 33 K.V.A. Rajapalayam feeder oil circuit breakers was also shifted to the temporary bay.

During the year the scheme of connecting up the super-excitation circuits in the generating and condensor stations in the three systems, Papanasam, Pykara and Mettur was taken up by a special Assistant Engineer, deputed for the purpose. The first stage of the work, viz., collecting up sufficient data after initial study and checking up of the existing voltage regulator schemes, has been completed. The second stage of works, namely, the actual connexions to be made and the testing of the scheme of super-excitation features on the machines has to be taken up. A number of adjustment was done to the Madura condensors and the performance of the condensors improved considerably.

92. *Audit, accounts and stores.*—The annual inspection and audit of the accounts of 1945–46 of this system was conducted by the Accountant-General's staff from 26th August 1946 to 6th September 1946. The commercial balance sheet for 1946–47 was drawn up.

The accounts relating to the operation stores at Pasumalai, Virudhunagar and Papanasam were maintained properly. The physical verification of these three stores was taken up and completed by the stock-verifier between December 1946 and the middle of April 1947. No large discrepancies were noticed during the verification. The stock-verifier has reported that the general condition of stores was satisfactory.

93. *Administration.*—The Papanasam system continued to function with two divisions one at Pasumalai and the other at Papanasam. A commercial subdivision consisting of one Assistant Engineer and three Junior Engineers was formed in July 1946 with headquarters at Madura, under the direct control of the Superintending Engineer.

94. *Programme of work for* 1947–48.—(1) Erection of the substation structures and switch-gear at Tenkasi substation, as also of staff quarters.

(2) Construction of a pump house at diversion weir at Papanasam and trailer pump houses at Papanasam camp and near power house.

(3) Fire protection scheme for Papanasam generating station and Madura station—Mulsifyre system of protection.

(4) Construction of a second telephone circuit between Papanasam and Madura. Work in Koilpatti-Madura section is in progress.

(5) Erection of switchgear in the second circuit extension at Sattur substation.

(6) Erection of the Virudhunagar second circuit 66 K.V. oil circuit breaker at Madura and of the 66 K.V. bus coupler oil circuit breaker by Messrs. General Electric Company.

(7) Erection of the high-tension switchgear for the second circuit extension at Virudhunagar and re-arrangement of transformers.

(8) Erection of 1,250 K.V.A. transformer at Virudhunagar to feed the loads on the 11 K.V. side; work in progress.

(9) Erection of two 2,000 K.V.A. transformers at Rajapalayam substation.

(10) Reinforcement of the 11 K.V. feeders 2 and 3 in Madura distribution; work in progress.

(11) Construction of a double circuit 11 K.V. line from Papanasam power house to Messrs. Harvey Mills at Ambasamudram; work in progress.

(12) Construction of additional store shed and one block of two rest houses at Papanasam, additional staff quarters at Tuticorin and Koilpatti and construction of workshops and oil testing room at Pasumalai.

ANDHRA POWER SYSTEM.

The Andhra Power System comprises the steam stations at Vizagapatam and Bezwada and the oil engine stations at Cocanada and Kurnool with their respective lines and distributions. (The Kurnool station was taken over from the Kurnool Municipality on 1st October 1946.)

VIZAGAPATAM SYSTEM.

95. *General.*—This was the eighth year of operation. The peak load on the station was 2,140 K.W. and generation 7·26 million units against 1,600 K.W. and 6·55 million units, respectively, in 1945–46. The number of units sold was 6·52 millions. The gross revenue earned was Rs. 5·28 lakhs against Rs. 4·47 lakhs during the previous year showing an increase of Rs. 0·8 lakh. The total connected load on the system was 5,535 K.W. against 5,423 K.W. in last year.

96. *Power-house.*—The operation and maintenance was satisfactory. The fourth boiler (22,000 lb./hr.) was put into regular service from 7th June 1946. The quota of coal now allotted for Vizagapatam Power Station does not permit further load development in the area. The Government have been requested to get a higher quota allotted.

97. *Load development.*—The following table gives the load development and revenue since the commencement of operation :—

Year.	Peak load in K.W.	Units generated in millions.	Units sold in millions.	Gross revenue (including miscellaneous). RS. IN LAKHS.
1938–39	820	1·78	..	0·85
1939–40	1,010	2·49	2·09	1·37
1940–41	1,000	3·00	2·43	1·77
1941–42	980	3·09	2·44	1·91
1942–43	840	2·91	2·32	2·09
1943–44	960	3·64	2·97	2·31
1944–45	1,160	4·77	3·86	3·36
1945–46	1,600	6·55	5·78	4·47
1946–47	2,140	7·26	6·52	5·28

98. *Financial results*—

	RS.
1 Total capital including arrears of interest ..	32,60,906
2 Gross revenue ..	5,27,501
3 Working expenses excluding interest and depreciation ..	4,15,940
4 Net revenue ..	1,11,561

99. *Connected load.*—The connected load at the end of the year under the different categories was as follows :—

Number and category.	Connected load in K.W. as on 31st March 1947.
I. Industrial H.T. supply—	
(*a*) Textiles	..
(*b*) Cement	..
(*c*) Chemicals	..
(*d*) Steel rolling mills	..
(*e*) Gold mining	..
(*f*) Oil and other industries including Government departments	..
(*g*) Tea estates	..
(*h*) Licensees—	
(1) Municipalities	..
(2) Others	2,385
(*i*) Ship building	1,032
II. Industrial L.T. suppliers	568
III. Irrigation and agriculture	65
IV. Domestic-heat and power light	661
V. Commercial heat and power light..	14
VI. Public water works and sewage pumping ..	..
VII. Street lighting	20
VIII. Miscellaneous (Railways and M.E.S. at L.T.) ..	790
Total ..	5,535

100. *Transmission lines, extra high tension sub-stations and distributions.*—The table below gives the length of transmission and distribution lines in the system :—

Voltage.	Constructed during the year 1946-47.		Total in service.	
	Single circuit lines.	Double circuit lines.	Single circuit lines.	Double circuit lines.
	MILES.	MILES.	MILES.	MILES.
33,000	0.5	..	48.5	..
11,000	7·0	0·2	73·0	10·7
L.T. lines	1·7	..	31·35	..

The number of power transformer stations was three with an aggregate capacity of 1,200 K.V.A. The number of distribution transformers in services was 25 with a total capacity of 1,180 K.V.A.

101. *Extensions.*—The duplicate line to Vizagapatam Electric Supply Company, and extension of lines for supply to Bengal-Nagpur Railway water works at Nellimerla were almost completed. The extension for supply of power to the jute mills at Chittivalasa was under execution.

The parallelling arrangements for power transformers at Chittivalasa, Vizianagram and Penubarthi were completed.

102. *Agricultural services.*—Three agricultural services with a connected load of 8 K.W. were connected up during the year bringing the total to 12 and 65 K.W.

103. *Rural industries.*—Fourteen rural industries with a connected load of 211 K.W. were connected up during the year bringing the total to 38 and 568 K.W.

Bezwada System.

104. *General.*—This was the eighth year of operation. The peak load on the station was 3,520 K.W. and units generated 11·23 millions against 2,500 K.W. and 10·38 millions units during 1945–46. The purchase of standby power from the Kistna Cement Company continued, but was curtailed to the minimum. The number of units purchased during the year was 1·03 lakhs against 0·63 lakh during 1945–46. The number of units sold was

10·09 millions. The gross revenue earned was Rs. 6·53 lakhs against Rs. 5·80 lakhs during the previous year showing an increase of Rs. 0·73 lakh. Two miles of 33 K.V. double circuit line, 7·8 miles of 11 K.V. single circuit line, and 14·5 miles of low-tension lines were constructed during the year. The total connected load was 7,255 K.W. against 6,982 K.W. last year.

105. *Power-house.*—The 3,000 K.W. turbo set has been put into commercial service after carrying out acceptance lists. Pending increase in the allotment of coal by the Electrical Commissioner, extra power loads sanctioned were not connected up.

106. *Load development.*—The following table shows the development of load and revenue since the commencement of operation of the system :—

Year.	Peak load in K.W.	Units generated in millions.	Units purchased from K.C. CO., in lakhs.	Units sold in millions.	Gross revenue (including miscellaneous) in lakhs.
1938-39	530	..	..	..	..
1939-40	1,540	4·68	..	3·92	1·89
1940-41	2,000	6·61	..	5·65	2·84
1941-42	2,300	9·12	..	7·94	3·68
1942-43	2,080	8·99	4·32	7·72	4·11
1943-44	2,420	10·49	3·01	9·07	6·25 *
1944-45	2,400	10·53	0·77	8·99	4·88
1945-46	2,500	10·38	0.63	8·76	5·80
1946-47	3,520	11·23	1·03	10·09	6·53

* Larger amount due to miscellaneous revenue from sale of materials.

107. *Financial results*—

	RS.
Total capital outlay including arrears of interest	43,15,138
Gross revenue	6,52,506
Working expenses excluding interest and depreciation	6,63,483
Depreciation and Special Reserve Funds	87,100
Total expenses	7,50,583
Net revenue	— 98,077

108. *Connected load.*—The connected load at the end of the year under the different categories was as follows :—

Number and category.	Connected load in K.W. as on 31st March 1947.
I. Industrial H.T. supply—	..
(*a*) Textiles	890
(*b*) Cement	..
(*c*) Chemicals	..
(*d*) Steel rolling mills	..
(*e*) Gold mining	..
(*f*) Oil and other industries, etc., including Government department.	..
(*g*) Tea estates	..
(*h*) Licensees—	2,150
1. Municipalities	2,250
2. Others	489
(*i*) Sugar	356
II. Industrial L.T. supplies	..
III. Irrigation and agriculture	148
IV. Domestic heat and power light	2
V. Commercial heat power and light	..
VI. Public water works and Sewage pumping	4
VII. Street lighting	966
VIII. Miscellaneous (Railways and Madras Electric Supply at L.T.)	
Total ..	7,255·000

109. *Transmission lines, extra high tension sub-stations and distributions.*—The table below gives the length of transmission and distribution lines in the system :—

Voltage.	Constructed during the year.		Total in service.	
	Single circuit.	Double circuit.	Single circuit.	Double circuit.
	MILES.	MILES.	MILES.	MILES.
33,000	2·0		3·3	96·3
11,000	..	7·8	..	76·4
L.T. lines	..	14·5	..	58·8

The total number of extra high tension substations was five as follows:—

	Capacity of transformer in K.W.
Tenali	1,250
Gudivada	200
Ellore	250
Nuzvid Junction	200
Masulipatam	600

The number of distribution transformer stations was 37 with a total capacity of 1,465 K.V.A.

110. *Extensions.*—Erection of the 33 K.V. double circuit tie line from Bezwada power house to four-pole structure at Gunadala was under progress.

One 750 K.V.A. outdoor transformer feeding 11 K.V. loads was replaced by a 1,500 K.V.A. outdoor transformer diverted from Vizagapatam.

111. *Agricultural services.*—Fifty-four agricultural services with a connected load of 171 K.W. were connected up during the year bringing the total to 190 and 960 K.W.

112. *Rural industries.*—Four rural industries with a connected load of 52·5 K.W. were connected up during the year bringing the total to 17 and 355·9 K.W., respectively.

COCANADA SYSTEM.

113. *General.*—This was the seventh year of operation. The peakload was 380 K.W. and the number of units generated was 1·25 millions, as against 420 K.W. and 1·4 millions units, respectively, last year. The number of units sold was 1·14 millions. The revenue earned was Rs. 1·23 lakhs against Rs. 1·62 lakhs in last year. The decrease in revenue during 1946–47 as compared to that during 1945–46 was mainly due to the gradual dropping off of military loads. The total connected load was 1,260 K.W. against 1,2[illegible] K.W. in the last year.

114. *Power-house.*—The 50 K.W. set released from Suryabagh power house was erected at Cocanada power house and kept as emergency standby.

115. *Load development.*—The following statement shows the development of load and revenue yearwar :—

Year.	Peak load in K.W.	Units generated in millions.	Units sold in millions.	Gross revenue including miscellaneous. RS. IN LAKHS.
1940–41	325	0·77	0·75	0·47
1941–42	360	0·94	0·73	0·76
1942–43	340	0·92	0·84	0·81
1943–44	314	0·86	0·77	0·91
1944–45	350	1·06	0·96	1·19
1945–46	420	1·40	1·27	1·62
1946–47	380	1·25	1·14	1·23 *

* NOTE.—The fall in revenue is due to reduced consumption in Military services and abolition of fuel cost surcharge.

116. *Financial results*—

	RS.
Total capital including arrears of interest	6,24,804
Gross revenue	1,23,381
Working expenses excluding interest and depreciation	1,64,901
Net revenue	— 41,520

117. *Connected load*.—The connected load at the end of the year under the different categories was as follows :—

Number and category.	Connected load in K.W. as on 31st March 1947.
I. Industrial H.T. supplies—	
(*a*) Textiles	..
(*b*) Cement	..
(*c*) Chemicals	Nil.
(*d*) Steel rolling mills	Nil.
(*e*) Gold mining	Nil.
(*f*) Oil and other industries excluding Government departments.	Nil
(*g*) Tea estates	Nil.
(*h*) Licensees—	
1. Municipalities	835
2. Others	..
II. Industrial L.T. supplies	136
III. Irrigation and agricultural	..
IV. Domestic (Heat and Power)	172
V. Commercial (Heat and power)	5
VI. Public water works and sewage pumping	..
VII. Street lighting	19
VIII. Miscellaneous (Railways and Madras Electric Supply at L.T.)	93
Total ..	1,260

118. *Transmission lines, high tension sub-stations and distributions*.—The table below gives the length of transmission and distribution lines in the system :—

Voltage.	Constructed during the year—Miles—Single circuit.	Total in service—Miles—Single circuit.
11,000	..	55·4
L.T.	..	29·8

The number of high tension sub-stations was nil. The number of distribution transformer stations was 11 with a total capacity of 415 K.V.A.

119. *Agricultural services*.—No new agricultural service was connected up during the year. The total number in the system as on 31st March 1947 was two with a connected load of 15 K.W.

120. *Rural industries*.—One rural industry with a connected load of 7·5 K.W. was connected up during the year bringing the total number as on 31st March 1947 to 15 with aggregate connected load of 135·9 K.W.

121. 11 *K.V. line to Ramapadasagar dam site*.—The line was completed and supply from the Paper Mills, Rajahmundry, to the dam site arranged.

Kurnool System.

122. *General*.—The Kurnool Municipal Electrical undertaking was taken over by this department at the request of the municipal authorities from 1st October 1946. The initial peak load was 55 K.W. and supply was restricted and made available only to domestic lighting for about 4½ hours (from 6-30 p.m. to 11 p.m.) Gradually the supply period was lengthened to eight hours.

123. *Power-house*.—The power position was improved by overhauling the engine sets to the minimum extent necessary and supply extended to small industries also.

To augment the station capacity one new 150 K.W. set was bought and commissioned shortly. The peakload on the station during the year was 93 K.W. and units generated 0·46 lakhs units (from 1st October 1946 to 31st March 1947). The gross revenue realised was Rs. 0·15 lakhs. The total connected load was 290 K.W.

124. *Load development*—

Year. 1946–47.	
Peak load	93 K.W.
Number of units generated	0·46 lakhs.
Number of units sold	0·40 „
Gross revenue	0·15 „

*From 1st October 1946.

125. *Financial results*—

Serial number and particulars	Amount RS.
1 Total capital including arrears of interest	*
2 Gross revenue	15,457
3 Working expenses, excluding interest and depreciation	23,400
4 Provision for Depreciation and Special Reserve funds	..
5 Net revenue	—7,943

* Purchase price of the undertaking had not been settled at the end of the year.

126. *Connected load.*—The connected load at the end of the year under the different categories was as follows:—

I. Domestic—	
(a) Heat and power	279
(b) Light and fans	
II. Commercial—	
(a) Heat and power	
(b) Light and fans	
III. Industrial low voltage, supplies—	
(a) Heat and power	11
(b) Rice hulling	
(c) Flour milling and grinding	
(d) Decorticating	
(e) Oil pressing	
(f) Cane crushing	
(g) Power looms, etc.	
(h) Small workshops	
(i) Other industries such as chemicals, pharmaceuticals, talkies, tanneries, ice factories, silk factories.	
Total	290

127. *Transmission, H.T. sub-stations and distributions.*—The table below gives the length of transmission and distribution lines as taken over from the Kurnool Municipality:—

Voltage.	Constructed during the year.	Total single circuit line as taken over from the municipality. MILES.
3,300	..	3·46
L.T.	..	14·30

The number of power transformer station was nil. The number of distribution transformer stations was 4 with a total capacity of 230 K.V.A.

128. *Agricultural services.*—There are no such services.

129. *Rural industries.*—Three small industrial services with a connected load of 11 K.W. were connected up during the year bringing the total as on 31st March 1947 to the same number of services and connected load.

130. *Accidents in the Andhra System* :—

Category.	Fatal.	Non-fatal.	Total.
1. Departmental	2	6	8
2. Non-departmental	1	9	10
Total ..	3	15	18

131. *Accounts and stores.*—The inspection report of Accountant-General's staff indicated that the maintenance of accounts was satisfactory.

During the year under report two new substores were opened at Rajahmundry and Kurnool. A separate stock verifier was sanctioned for the Andhra Power System. He completed the verification of the four stores in the system during 1946–47. Rajahmundry and Kurnool stores were not however verified as they were newly organised. The stock verifier's reports indicated that the physical custody of stocks was satisfactory.

132. *Administration.*—The subdivision sanctioned for Ramapadasagar construction works was closed and fresh subdivisions were sanctioned for (1) Commercial work, (2) Kurnool, (3) Bezwada constructions, (4) Vizagapatam constructions and (5) Rajahmundry-Mandapet extensions during the year.

133. *Audit, accounts and stores.*—Verification of stock in the stores in the different systems was made. The working of the stores and the Central Offices was generally satisfactory. During 1945–46 a third stock verifier was appointed. Experience indicated that the number of stock verifiers was inadequate to cope with the increasing work in the department and Government have sanctioned the employment of two additional stock verifiers.

The post of Assistant Engineer sanctioned for the stock verification subdivision under the Superintending Engineer, Technical was converted into that of a Stores Superintendent. There are now three Stores Superintendents, one for the Pykara system, one in Madras under the Superintending Engineer, Technical and one for the Machkand Scheme. Government have also sanctioned a Stores Superintendent for the Mettur System.

A Chief Controller of Accounts has since been appointed for the reorganization of the Accounts Branch of the Department in line with modern Commercial practice and for supervision and control over the existing accounts organization in the Operation and Power Development branches. He will be responsible for all the accounting (including budget) and stores of the department and will work directly under the administrative control of the Chief Engineer.

Technical Branch.

134. *Technical branch.*—With the addition of a division in November 1946, the technical branch under the Superintending Engineer (Technical) consisted of three Electrical and Mechanical divisions and one Civil and Hydraulic division.

The branch continued to be very busy with preparation of reports and estimates for new schemes and extensions, post-war schemes, issue of specifications and tender sets and placing of contracts for sanctioned works, correspondence with the contractors, Director-General, India Stores Department, Electrical Commissioner, Iron and Steel Controller, other Government of India Departments, Railway and Telegraph authorities, General Superintendent, Public Works Department Workshops, departmental officers, Messrs. Merz and McLellan in regard to initial stage works of the Madras Plant extensions and others. All proposals from Messrs. Merz and McLellan regarding the extension at Basin Bridge power station of Madras Electric

Supply Corporation were scrutinized and comments or approval communicated to the Consulting Engineers. Electrical installation estimates and tenders received from the Electrical Engineer (General) were scrutinized. Proposals regarding transformer changes were examined and finalised. Orders were placed for spares, transformers, line materials, etc., required for the operation and maintenance of power systems and extensions. Revision of code of technical instructions and standardization of maintenance instructions for equipments were attended to. Specifications, estimates, etc., in respect of the civil works of the sanctioned schemes, buildings, scrutiny of tenders connected therewith, etc., were done in the Civil and Hydraulic division.

The following are among the more important of the schemes for which reports with estimates were prepared :—

Nellore Thermal Scheme (revised).

West Godavari Scheme.

Tanjore-Mayavaram-Chidambaram Extension.

Papanasam-Tinnevelly-Kayattar Extension.

Madura-Tirumangalam-Rajapalayam-Tenkasi 66 K.V. Extension.

Negamam-Pollachi 66 K.V. Extension.

Villupuram-Pondicherry 66 K.V. Extension.

Extension of 33 K.V. line from Bezwada to Guntur and 11/33 K.V. line from Tenali to Bapatla and Chirala.

Extension of 25 miles of H.T. line in West Ramnad licensee's area.

Mettur Workshop Expansion Scheme.

Extension of supply to Mangalore-Udipi-Coondapur in the South Kanara area from Jog Scheme of Mysore and alternatively from Pykara was studied.

Details of the orders for important equipment placed are given under the reports on the respective schemes.

Five hundred and thirty-one extensions costing about Rs. 84 lakhs were scrutinized. Materials for operation and maintenance and for extensions, to the value of about Rs. 48 lakhs were ordered. Additional power transformers to meet increased loads were ordered at a cost of over Rs. 25 lakhs.

Proposals relating to the hydro-electric portion of the Tungabadra and Ramapadasagar Schemes, received from the Chief Engineer (Special) were being studied.

The stock verification work was done under the administrative control of this branch. A Stores Superintendent in the Office of the Superintending Engineer, Technical was in general charge of this work.

Hydro-metric work and collection, computation and recording of rainfall and runoff data for the several basins in the Presidency were continued as usual.

Delays and difficulties in obtaining plant and equipment, iron and steel, cement and other materials and applications for import licences and transport priorities, resulted in the Technical Branch having to handle heavy correspondence under pressure of time throughout the year.

ELECTRICAL INSPECTORATE AND LICENSEE ELECTRIC SUPPLY UNDERTAKINGS.

135. *General.*—The anticipated improvement in the availability of plant and equipment and stores did not materialise well enough. Prices of materials, instead of taking a downward trend, actually shot up further. The continued increase in the cost of living created staff dissatisfaction. The public, eagerly awaiting removal of restrictions of electricity supply soon after the war was over, began to show great impatience at not getting domestic connections and extensions of electric supply for agricultural purposes far more freely. The licensees found it very difficult to satisfy the public due to

scarcity of plant, stores and equipment. While some began to earn more revenue due to partial relaxations in supply, all had to face increased demands for salaries and wages from staff. The year went by without achieving even a substantial portion of the expectations held by the licensees and the public, at its commencement.

136. *Electrical undertakings.*—The number of electric supply undertakings under the Indian Electricity Act including three (Rameswaram, Tiruchendur and Valparai Township) operating under section 28 of the Indian Electricity Act was 80 at the close of the year, out of which 35 were managed by local bodies and the rest by private companies, vide Appendix D-1.

Two applications were received for new licences under the Indian Electricity Act but both were rejected.

The following licensee's applications for extension of areas of supply were considered during the year :—

(1) Okkur.
(2) Nattarasankottai.
(3) Chittoor.
(4) Tirupati.
(5) Narasaraopet.

The last three have been turned down and the first two are still under consideration. The application of the Okkur licensee involves only transference of licence areas.

The Government had under active consideration the question of cancellation of certain licences consequent on inability of the concerned licensees to give satisfactory supply to the public. The municipal undertaking of Kurnool was taken over during the year; and such taking over has been sanctioned for Kollegal and Hindupur. Some other cases were under consideration of Government. For the valuation of the three undertakings of Kurnool, Kollegal and Hindupur, an Assistant Engineer was posted for a period of five months for assisting the Chief Electrical Inspector to Government in the valuation and the valuation reports have been submitted to Government.

A number of applications were received from local authority administrations in whose area company licensees were operating, requesting Government to cancel the existing licences and grant licences to the local authorities instead. Since in all cases the existing licences had some more years to run and later departmental supply would probably prove better and as the existing licensee areas extended beyond the local authority areas, these applications were rejected.

137. *Indian Electricity Act and Rules.*—Proposals for enforcement of the provisions of the Indian Electricity Rule 48 and licensing of wiring contractors and syllabus for an examination in connection therewith were under scrutiny.

Indian Electricity Rule 62 (3) was amended during the year to cover all persons other than licensees.

The Electric Supply Bill was scrutinized and comments were offered.

138. *Accounts.*—During the year under report 35 accounts of company—managed undertakings and 28 accounts of local authority undertakings were scrutinized and remarks submitted to Government.

The experience of all these years has confirmed that the existing system of auditing of company electric licensees accounts on behalf of Government whereby the Company Auditor is also the Goevrnment Auditor is inherently defective and has not achieved the desired results from the Government's view point. Certain proposals were submitted to Government during the year to modify the procedure.

139. *Tariffs.*—The rates of Kodaikanal, Tiruvallur, Chingleput, Devakottai and Karaikudi were reduced. Proposals for reduction of rates in Palghat were under correspondence.

The accounts of all undertakings are being scrutinized with special reference to profits earned above the figure specified in power agreement. The licensees are being addressed to reduce their rates wherever their profits exceed stipulated limits.

140. *Restriction and control orders in licensees' area.*—The Defence of India Rules under which all the orders for regulating electric supply had been issued lapsed by 30th September 1946 (i.e., six months after the official termination of the war). The Government of India, therefore, promulgated the Emergency Powers (Continuance) Ordinance, 1946, with effect from 1st October 1946, and all the orders for regulating electric supply were continued under the above new Ordinance.

The Emergency Powers (Continuance) Ordinance, 1946, lapsed on 24th March 1947, and the Madras Government re-issued all the orders for regulating electricity supply under the Madras Essential Articles Control and Requisitioning (Temporary Powers) Act, 1946, with effect from 25th March 1947.

The restrictions on new service connections continued to be in force during the year under review and every new supply or additional supply was allowed under a permit.

To save time, Government permitted during the year, the licensees to give temporary supplies for essential loads not exceeding 2 K.W. and for periods of less than 10 days in anticipation of the permit from the Chief Electrical Inspector to Government and subject to these being ratified by the Chief Electrical Inspector to Government later.

Essentiality under the Restriction and Control Orders were extended to include domestic connections, power supply for manufacture of consumer goods in short supply and supply for street-lighting. Domestic connections were permitted on the basis of fixed monthly quotas for each licensee. The number of domestic connections sanctioned during the year was 25,504.

The number of applications for permit for other supplies received during the year was 8,680. Of these 5,660 were for permanent supplies and the remainder were for temporary supplies.

The Central Electric Power Control Board ceased to exist on 1st October 1946 and the supply for loads over 50 K.W. after 1st October 1946 were sanctioned by the Provincial Government. The number of applications sent to the Central Electric Power Control Board till 1st October 1946 for loads exceeding 50 K.W. was 3, and the total loads sanctioned by the Board 384·8 K.W.

141. *Freezing orders.*—The freezing orders served on the Madras Electric Supply Corporation and the four electrical undertakings taking bulk supply from the Madras Electric Supply Corporation, and on the 12 licensees taking bulk supply from the Government Electricity Department continued to be in force during the year.

In November 1946, Government authorized the Chief Electrical Inspector to Government to grant permits for extension of loads in existing domestic installation in the above licensees' areas if such extensions were within the capacity of the existing meters and service connections.

142 *Peak-load restrictions.*—During the previous year the generating plants at the power-houses of the following licensees had been declared

be fully loaded peak-load hours, and no new supply was permitted during peak-load hours :—

(1) Calicut.
(2) Cannanore.
(3) British Cochin.
(4) Cuddapah.
(5) Hindupur.
(6) Proddatur.
(7) Mangalore.
(8) Rajahmundry.

As supply position in Calicut and British Cochin improved, they were removed from the ' Black List ' and supply for new connections and additional loads began to be permitted.

143. *Priority schemes.*—At Cannanore, Cuddapah, Ongole, Kollegal and Proddatur the licensees have been given an approved scheme to cut off load in a pre-arranged order of priority in cases of partial breakdown of plant in their power stations.

144. *Committee for Madras.*—To meet the pressing public demand for lighting and small power in the Madras City area, the Government made their Emergency Thermal station at Villivakkam of 1,500 K.W. capacity, available for operation by the Madras Electric Supply Corporation in conjunction with their Basin Bridge station. The Government also ordered that all applications for new supplies in the area should be considered by a Committee consisting of the Secretary to Government, Public Works Department, Chief Engineer for Electricity and the Chief Electrical Inspector to Government. The Committee was functioning from September 1946.

145. *Rationing of electricity.*—The restrictions imposed in the past years on the working hours of oil engine generating stations continued to be in force during the year under review.

From September 1946 Government permitted the street lighting in Madras area to be kept on throughout all nights. As a result of improved supply position of electrical energy the street lighting in the areas of licensees taking supply from the Hydro-Electric and the Vizagapatam Thermal Systems was allowed to be restored to pre-war level. In the Bezwada area, this relaxation was not found feasible until the commissioning of the third unit. In the areas of licensees generating their own power by diesel sets, the restoration of street lighting to pre-war level was not found feasible partly due to oil supply position and partly due to the bad condition of engines. However, the oil position eased considerably by about the middle of the year under review and Government accordingly authorized the respective District Magistrates to partially relax the restrictions on the existing street lighting wherever feasible in consultation with the Chief Electrical Inspector to Government and the licensees concerned.

146. *Diesel oil control.*—The diesel oil control instituted in 1942 continued to operate till 25th March 1947 and the diesel oil supply to electrical undertaking in the Province was on the basis of oil quota determined by the office of the Chief Electrical Inspector to Government and advised to the oil supply companies by the Deputy Director of Supply (fuel oil).

During the year it became possible to give increased oil quotas though some licensees could not fully avail of it due to bad plant position. At the close of the year under review four of the self-generating licensees using diesel oil, were having a 24 hours supply. Five were having a 20 hours supply and nine were having less than 20 hours supply. The average aggregate monthly oil consumption of different undertakings for 12 months from which 1946 to February 1947 (both inclusive) was 196·25 tons. This represents a reduction of 14·7 per cent on the consumption prior to the introduction of

diesel oil control, but most of the reduction was due to Calicut getting Government hydro-electric supply and closing down its power-house.

The Chief Electrical Inspector to Government continued to represent the Government of Madras on the Fuel Oil Advisory Committee. No meetings of the Committee were held during the year under review.

147. *Supply conditions in licensees' areas.*—In the case of licensees taking bulk supply from Mettur, the restrictions imposed due to low water conditions in the Mettur lake were removed during June 1946 and generally in the case of all licensees in the hydro-electric areas power supply position was fairly satisfactory and power was available for all purposes considered as essential.

In the case of licensees taking supply from the Bezwada power-house power supply was not available except for domestic, agricultural and very essential power purposes. The commissioning of the third set towards the end of the year was expected to relieve the situation.

In the area of the Cocanada licensee taking supply from the Government oil engine station at Cocanada, there was no margin of power available for extensions. In the Vizagapatam power-house area, supply was fairly freely available.

Supply position became satisfactory in Calicut due to Government hydro-electric supply becoming available there as from 10th April 1946. Similarly in British Cochin, hydro-electric supply from Pallivasal (Travancore) became available through the Cochin State.

Hospet re-started supply on 17th October 1946 after a shut-down of about two years, with two second-hand sets from Travancore.

The condition of the engines in the Cannanore power-house further deteriorated during the year and public supply was very unsatisfactory. Hydro-electric supply has since been given to Cannanore from 22nd Ma[y] 1947. The case was similar at Cuddapah and Proddatur. Kollegal also experienced unsatisfactory supply at certain times. At Kurnool, two of the four engines had major engine breakdowns and public supply had to be completely stopped from 28th May to 24th July 1946. Partial supply was kept up to the municipal water-works.

The Nellore Power and Light, Limited, declared, at the end of the year that its power-house was fully loaded and that it could take no more loads.

The Mangalore Electric Supply Company, Limited, which is not now in a position to take extra day loads, has ordered for two additional new oil engine sets for coping with demand for increased supply.

The other self-generating licensees whose power-houses are now fully loaded could not however be persuaded during the year, to install additional plant.

The Ponnani licensee has not yet made arrangements for starting supply. The East Coast licensee has been given permission to commence work and he is making arrangements for starting supply (vide Appendices D-2, 3 and 4

The demand for load in the case of licensees operating in hydro-electr[ic] areas has been very heavy and while power was available, the deman[d] could not generally be met for want of enough line materials, meters, etc.

Details of capacities of the plant of the generating stations of licensee[s] are given in Appendix ' E '.

148. *Assistance to licensees regarding plant, poles, etc.*—Assistance [to] licensees to improve their plant position continued to be given by the Inspe[c]torate. Throughout the year the licensees concerned were kept informe[d]

about the availability of any generating sets and other electrical equipment that came to be known as available.

Scarcity of poles for extension of mains was keenly felt. A number of extensions and services could not be taken up for want of these materials. So the licensees were advised to use M.S. girders and the indents from the licensees were collected and sent to the Electrical Commissioner for being transmitted to the Iron and Steel Controller. This is now resulting in some girders being made available.

During July 1946 information reached this office that new and second-hand rails poles would become available from the military surplus stocks at Avadi. Immediately the requirements of licensees were called for and indents for about 21,000 rails got and forwarded to the Director-General of Disposals for allocation, but the rails were not available.

The requirements of galvanized iron pipes and fittings of licensees were obtained and a consolidated statement furnished to the Regional Deputy Iron and Steel Controller for compliance. But this also has not resulted in any supply being effected, due to scarcity of stock.

Similarly, attempts to help licensees for getting wood poles from the Government forest were not successful.

The position regarding poles is now very unsatisfactory and a great deal of dissatisfaction is felt by the public at supply not being extended freely, especially for agricultural pumping. The licensees who are now prepared to take up such extensions are finding the unsatisfactory materials position and their high cost, a great handicap.

It was found that for want of electricity supply meters many licensees were not able to give service connection even to the limited number of cases for which permits under Restriction and Control Orders were being issued. In order to overcome this stalemate a scheme for giving an unmetered supply for domestic purposes till meters become more freely available has been approved by Government.

149. *Strikes.*—The year witnessed a marked increase in dissatisfaction of the staff of electric supply companies and demand for higher salaries and wages. There was a strike of the workers in the Cuddapah power-house from 11th August to 20th November 1946 demanding higher wages but supply was kept up. The staff of the West Coast Electric Supply Corporation and Kumbakonam Electric Supply Corporation, Limited, gave notices of strike demanding higher wages. In the former case a strike actually materialized on the 15th February 1947 and lasted till 26th February 1947. During this period full supply at Calicut-Tellicherry were kept up. The Government has ordered adjudication of the dispute. At Kumbakonam the management and the employees came to an understanding before the strike materialized.

Copies of notices of demand by staff on management for higher wages have been received by Government in a few other cases also.

150. *Local authority electric supply undertakings.*—At the commencement of the year under report the number of local authorities electric supply undertakings in the Presidency was 35.

Periodical and systematic inspections of all local authorities undertakings except two was made during the year by the Inspector of Local Authority Electric Supply Undertakings. He studied, during the inspections the existing conditions (administrative, statutory, technical, financial and accounting, etc.) and issued the necessary instructions and advice for their

more efficient operation and expansion. In the case of undertakings working at a loss or not making substantial profit, ways and means were suggested for improving the financial condition.

During the year, estimates and tenders to the amounts of Rs. 1,41,967 and Rs. 1,72,066 respectively were scrutinized by this office and advice given.

At the beginning of the year there were 3 first grade, 4 second grade, 23 third grade and 3 fourth grade stations. On the recommendation of the Chief Electrical Inspector, Government ordered a reclassification and the present number of stations of each grade are as follows :—

I Grade	4	III Grade	12
II Grade	7	IV Grade	8

Proposals for the revision of scales of pay of the members of the Madras Local Authorities Electrical Engineers Service were approved by Government. In view of the revised salaries attempts to recruit fresh hands to the Madras Local Authorities Electrical Engineers Service proved successful during the year under report and four candidates were selected.

In February 1947 the Government further revised the scales of pay of members of the Local Authorities Electrical Engineers Service and of subordinate establishment, the former being mandatory but the latter only if funds were available.

For the future development of the local authorities undertakings in the Presidency loan applications for a sum of Rs. 7,44,500 were received and after scrutiny, a sum of Rs. 4,74,700 was recommended to Government for disbursement during the year 1947–48.

The Central Fund for payment of leave salary and contribution to Provident Fund during leave of the Madras Local Authorities Electrical Engineers Service, which is administered by the Chief Electrical Inspector to Government was audited by the Examiner of Local Fund Accounts from 20th to 29th January and 12th February 1947 and was found satisfactory. The total amount at the credit of the fund on 1st April 1946 was Rupees 46,201–13–0 and the disbursements made during the year amount to Rs. 41,711–15–0.

A new feature during the year was the decision of Government to take over some of the local authority electric supply undertakings that were working unsatisfactorily and proving a drain on the general funds of the local authorities instead of a source of revenue as has already been referred to. In addition to Kurnool, Kollegal and Hindupur requesting the Government to take over their undertakings, a request has also been received from Anantapur Municipal Council.

151. *Surcharges*—(1) *A.R.P. works surcharge.*—No licensee was permitted during the year to levy this surcharge.

(2) *War costs surcharge.*—The Licensed Undertakings War Costs Surcharge Order, 1946, was issued in March 1946. Originally the Government Order related only to the licensed undertakings. But subsequently the Government Order was amended to include the electrical undertakings operating under section 28 of the Indian Electricity Act also. As required by the order all the electrical undertakings excepting the Proddatur Power and Light, Limited, sent their declarations. Twenty-six of them declared as requiring no surcharge and the rest 53 forwarded the relevant calculations. Thirty-two of these licensees, who were already levying a war condition surcharge were provisionally permitted to levy a war costs surcharge at the same rate as the then existing war condition surcharge or 20 per cent whichever was less pending the scrutiny of their calculations.

On scrutiny 16 of these 53 licensees were not found entitled to levy any surcharge and 10 for any surcharge after 30th September 1946 and the surcharges in these cases were accordingly cancelled. The British Cochin licensee was asked to submit revised calculations and since these were not received it was presumed that no surcharge was required.

In the case of others, rates of surcharge were fixed suitably, based on a check of the calculations submitted. At the close of the year 26 licensees were levying war costs surcharges.

In the light of the experience gained in the working of the war costs surcharge scheme for one year certain modifications to the original war costs order were suggested and Government requested to re-issue the modified war costs order under the Madras Essential Articles and Requisition (Temporary Powers) Act, 1946. The modifications suggested were under scrutiny of Government towards the close of the year.

Since war costs surcharge order superseded the war condition and war risks insurance surcharges, no licensee was permitted to levy either of the latter during the year.

152. *Laboratory.*—During the year under review supply pressure and meter tests of 33 licensees were carried out. In most of the licensees' area, the supply pressure was found to be varying beyond the permissible limits. During the war period 13 licensees had been permitted by the Government to vary the supply pressure up to 8 per cent for the duration of the war and six months thereafter. These licensees were asked to rectify and bring the variations within 5 per cent by the time the above period expired. Due to non-availability of materials however the following licensees have been permitted by Government variation of pressure up to 8 per cent for a further period :—

(1) Bellary, (2) Kodaikanal and (3) Nellore.

The total number of tests carried out in the laboratory at Madras and at site in licensees' areas was as follows :—

Laboratory.	
Rotating sub-standard meters	172
Commercial meters and other instruments	318
Transformer oil tests	174
Repairs to meters	186
Fire extinguishers	613
Site test.	
Voltage tests	299
Meter tests	389
Total tests	2,151

Out of 172 rotating sub-standards 81 were from licensees and the rest from Government systems. Fifty-one licensees sent their sub-standards for test and adjustments during the year.

During the year, the new Pykara-Calicut 66 K.V. line was also tested for over-potential by the laboratory.

The total revenue realized during the year as testing fees is Rs. 11,232 including the contribution from the systems. Revised scale of fees for testing meters, etc., in the departmental laboratories were approved by Government during the year, the fees being enhanced in certain cases and additional fees being prescribed in certain other cases, where formerly there were none.

153. *Cinematograph Act and Rules.*—The total number of cinemas at the end of the year under review was 556 of which 270 were permanent and the rest 286 touring. The table below shows the number of licensed cinemas during the last eight years. The table shows clearly the depressing effect war had on this industry and the quick recovery that has been effected already :—

Year.	Cinemas. Permanent.	Cinemas. Touring.	Cinemas. Total.	Year.	Cinemas. Permanent.	Cinemas. Touring.	Cinemas. Total.
1939 ..	190	247	437	1944 ..	234	125	359
1940 ..	223	268	491	1945 ..	236	131	367
1941 ..	228	186	414	1946 ..	250	160	410
1942 ..	236	168	404	1947 ..	270	286	556
1943 ..	239	150	389				

Inspections were carried out of all the cinemas during the year. There was no prosecution for the infringement of the Madras Cinematograph Rules. Government have ordered that compliance of Madras Cinematograph Rule 38 need be looked into by the Inspectorate only in those places where organizations of the Madras Fire Service are not functioning.

154. *Cinema operators' licences.*—One examination was held during the year at Madras for cinema operators. Out of 421 candidates who sat for the examination, 327 candidates came out successful. Since the inspection of the examination system, a total of 1,622 candidates have come out successful. Two hundred and fifty-one licences were issued during the year and the total number of licences issued to end of 31st March 1947 is 1,206.

155. *Madras Electricity Duty Act*, 1939.—The year under review was the eighth year of working of the Madras Electricity Duty Act and Rules. The actual revenue realized from this source since the Act came into force is given below :—

Year.	Amount. RS. IN LAKHS.	Year.	Amount. RS. IN LAKHS.
1939–40	5·07	1943–44	5·82
1940–41	6·54	1944–45	7·13
1941–42	6·56	1945–46	8·04
1942–43	5·64	1946–47	9·83

The Madras, Madura and Trichinopoly-Srirangam Electrical Undertakings continued to top the list of duty paying licensees, the payments made by them from 1st April 1946 to 28th February 1947 being Rs. 3,06,554, Rs. 64,159 and Rs. 55,256, respectively.

The number of licensees paying duty during 1946–47 was 61 as against 60 in 1945–46. All licensees except Kurnool, who were paying duty during 1945–46 continued to pay duty during the year under report also and in addition Neikuppai and Kodaikanal licensees paid duty during the year.

The books of accounts of 26 electrical undertakings were inspected during 1946–47 under the Madras Electricity Duty Act and Rules.

156. *Expenditure and revenue.*—The total revenue realized under the different heads of account during 1946–47 was as under :—

Revenue.	RS. IN LAKHS.
1 From inspections under the Indian Electricity Act, Cinematograph Act Tests and Miscellaneous receipts	0·83
2 From penalty for excess consumption of electricity	2·02
3 From Madras Electricity Duty Act, 1939	9·83
4 From use of Government water for generation of electricity	0·20
Total revenue ..	12·88

The total expenditure of the circle was Rs. 1,75,600.

157. *Accidents.*—The total number of electrical accidents reported during the year is 133 of which 59 proved fatal.

Table I below shows a comparative statement of electrical accidents for the last eight years while Table II gives an analysis of the fatal accidents :—

Table I.—Accidents.

Year.	Fatal.	Non-fatal.	Total.	Year.	Fatal.	Non-fatal.	Total.
1938–39 ..	49	89	138	1943–44 ..	33	56	89
1939–40 ..	44	94	138	1944–45 ..	59	73	132
1940–41 ..	45	87	132	1945–46 ..	56	56	112
1941–42 ..	33	69	102	1946–47 ..	59	74	133
1942–43 ..	41	69	110				

Table II.—Fatal Accidents.

Area in which accidents took place.	Employee.	Non-employee.	Total.
1 Government Hydro-Electric area (Mettur, Papanasam and Pykara)	3	28	31
2 Government thermal systems	2	1	3
3 Company licensees' mains	3	18	21
4 Municipal electrical undertakings ..	2	2	4
Total casualties ..	10	49	59

NOTE.—The above tables do not include non-electrical mechanical accidents.

The accidents under the licensees mains are further classified as follows, depending on the nature and cause of the accidents :—

Licensees' employees.			Licensees works but accident to non-employees.			Private houses.		Other premises including factories.		
Unauthorized working.	Non-compliance of safety rules.	Other causes.	Snapped conductors.	Inquisitive climbing or suicide.	Other causes.	Careless handling.	Faulty equipment or wiring.	Careless handling.	Faulty equipment or wiring.	Total.
1	5	2	8	15	3*	5	5	2	3	49
Fatal out of the above.										
1	3	2	6	8	1	2	2	..	..	25

* Two of the accidents were caused from street light fixtures to the employees of the local authority due to non-compliance of safety rules and the third due to a post getting alive.

158. *Staff.*—Mr. John Kuriyan, General Superintendent, Operating Systems, proceeded on a month's leave early in March 1947 and Sri Rao Bahadur B. R. Somayajulu, Superintending Engineer, Andhra Power System, was promoted and posted to act for him.

Sri V. K. Govinda Menon, Divisional Electrical Engineer, was promoted as Superintending Engineer and posted to the Andhra Power System.

Consequent on Sri Rao Bahadur G. Yoganandam, Superintending Engineer, Technical, proceeding on leave, Sri P. V. A. Narayanamurthi, Divisional Electrical Engineer, was promoted as Superintending Engineer, and posted as Superintending Engineer, Technical.

With the formation of the Moyar Construction Circle in May 1946 and posting of Sri Rao Sahib N. Krishnamurthi as Superintending Engineer in charge. Sri Rao Sahib P. M. Chengappa, Executive Engineer (Civil), was promoted as Superintending Engineer and posted as Superintending Engineer, Construction Branch, Madras. In November 1946 Sri Rao Sahib P. M. Chengappa was transferred as Superintending Engineer, Machkund Construction Circle, his place being filled by the promotion of Sri Rao Sahib A. Venkateswaran, Executive Engineer (Civil).

The following promotions were made during the year under review:—

Number and name of officer.	Designation of post to which promoted.
1 Sri G. S. Rama Ayyar	Divisional Electrical Engineer.
2 ,, S. Padmanabhan	Do.
3 ,, V. K. Sethuraman	Do.
4 ,, T. N. Rajagopal	Do.
5 ,, T. Mahalingam	Executive Engineer (Civil).
6 ,, N. Venkataraman	Non-Technical Personal Assistant to the Chief Engineer for Electricity.

The following officers were admitted to the Madras Electrical Service or the Madras General Service :—

Number and name of officer.	Service and post to which appointed.	
1 Sri K. S. Gurumurthi	Madras Electrical Service, Assistant Engineer (Electrical).	
2 ,, S. Swayambu	Do.	
3 ,, C. S. Avadhani	Do.	
4 Mr. A. A. Thomas	Do.	
5 Sri K. M. Sankaran	Do.	
6 ,, A. M. Ramalingam	Do.	
7 ,, A. Subramaniam	Do.	
8 ,, K. C. Krishnan	Do.	
9 ,, V. R. Raghavan	Do.	
10 ,, C. Ramaratnam	Do.	
11 ,, C. N. Devarajan..	Do.	
12 ,, N. Appalanarasimham	Do.	
13 ,, R. Ayyaswami	Do.	
14 ,, K. A. Subramaniam	Do.	
15 ,, S. Krishnamurthi	Madras Electrical Service, Assistant Engineer (Mechanical.)	
16 ,, V. N. Kelkar	Madras Electrical Service, Assistant Engineer (Class V).	
17 ,, M. Subramaniam	Do.	do.
18 ,, T. S. Venkataraman	Madsas General Service	Stores Superintendent.
19 ,, D. Sarvesan	Do.	Chief Accountant.
20 ,, S. Aravamuda Ayyangar	Do.	Deputy Chief Accountant.
21 ,, T. Viswanathan	Chief Accountant, Office of the Chief Electrical Inspector to Government.	

The department regrets to record the untimely death, during the year, of Messrs. K. Narayanamurthi, P. S. Kalahasti and K. Kumara Menon, Assistant Engineers of the department.

159. *Acknowledgments.*—The thanks of the department are due to the Director-General, India Store Department, London, and the Electrical Commissioner with the Government of India for their valued help during the year. Thanks are also due to the several contracting firms who assisted the department in its various activities.

Sir Henry Howard, Consulting Engineer to Government, continued to give ready and valuable advice on all technical and administrative matters referred to him and the department is greatly indebted to him.

The Chief Engineer has pleasure in recording once again his deep appreciation of the hard and willing work put in by the whole staff of the department.

G. SUNDARAM,
Chief Engineer for Electricity.

APPENDICES

APPENDIX A.

List of construction works undertaken with expenditure to end of 1946–47.

Name of scheme.	Expenditure during 1946–47 up to March final. RS.	Total expenditure to end of 1946–47. RS.
I. Government schemes—		
1. Hydro-Electric Schemes—		
(1) Pykara Hydro-Electric Scheme	20,93,492	3,45,02,599
(2) Mettur Hydro-Electric Scheme	15,68,871	2,25,50,306
(3) Papanasam Hydro-Thermal Scheme	11,71,135	1,82,38,902
2. Thermal Electric Schemes—		
(1) Vizagapatam Thermal Station	(—) 2,75,528	26,19,997
(2) Bezwada Thermal Station	3,02,927	37,43,105
(3) Cocanada Thermal Station	17,571	5,97,198
(4) West Godavari Scheme	10,037	1,89,455
3. Hydro-Electric Schemes—Post-War Reconstruction—		
(1) Moyar Scheme	22,60,642	24,77,304
(2) Pykara III Stage Extensions	2,16,861	2,16,861
(3) Madras-Mettur Interconnection	4,62,645	6,78,733
(4) Extension to Kuppam	54,205	54,205
(5) Papanasam Plant Extensions II Stage	6,13,503	7,83,810
(6) Madura Thermal Scheme	15,079	15,079
(7) Machkund Hydro-Electric Scheme	2,48,718	2,48,718
(8) Ceded Districts Scheme	54,881	54,881
4. Thermal Electric Schemes—Post-War Reconstruction—		
(1) Vizagapatam Power House Extensions	5,02,632	5,06,791
(2) Madras Power Station Extensions	1,40,480	1,40,480
(3) Rajahmundry-Samalkot Extension Scheme	6,89,242	8,25,219

APPENDIX B.

Budget provision for capital works in 1947–48.

Serial number and capital expenditure.	Budget, 1947–48. RS.
I. HYDRO-ELECTRIC SCHEMES.	
81. A. I. A. Pykara Hydro-Electric Scheme—	
(1) Pykara Hydro-Electric Scheme	1,40,800
(2) Distribution of power in the Pykara System	6,63,900
(3) Supply of power to the West Coast	7,76,200
(4) Construction of transmission lines and other works for supply of power to intending consumers	7,50,000
(5) Pension charges	12,800
Total—81. A. I. A. Pykara Hydro-Electric Scheme	23,43,700
81. A. I. B. Mettur Hydro-Electric Scheme—	
(1) Mettur Main Scheme	1,00,800
(2) Extensions of supply to Ranipet, Kaveripakkam and Conjeeveram	19,500
(3) Supply of power to Arkonam	3,400
(4) Distribution of power in Mettur System	12,99,100
(5) Fourth Generating Unit at Mettur	..
(6) Construction of transmission lines and other works for supply of power to intending consumers	29,64,000
(7) Minor Works—Construction of quarters for the line and operation staff	8,300
(8) Construction of additional quarters at Mettur Dam	80,300
(9) Chingleput-Conjeeveram-Arkonam extensions	12,36,000
(10) Pension charges	13,400
Total—81. A. I. B. Mettur Hydro-Electric Scheme	57,24,800

Serial number and capital expenditure.	Budget, 1947–48.
	RS.
81. A. I. C. Papanasam Hydro-Thermal Scheme—	
(1) Papanasam Hydro-Thermal Project	2,39,000
(2) Distribution of power in the Papanasam system	5,37,200
(3) Supply of power to Travancore State	91,400
(4) Supply of power to Virudunagar and Rajapalayam	100
(5) Construction of Madura-Kovilpatti Second circuit transmission line	4,61,000
(6) Pension charges	6,400
Total—81. A. I. C. Papanasam Hydro-Thermal Scheme	13,35,100
II. Thermal Electric Schemes.	
81. A. II. A. Vizagapatam Thermal Station—	
(1) Vizagapatam Thermal Station	12,800
(2) Distribution in the Vizagapatam Thermal area	11,11,600
(3) Third Generating set at Vizagapatam	200
(4) Fourth Generating set at Vizagapatam	10 300
(5) Pension charges	8,300
Total—81. A. II. A. Vizagapatam Thermal Station	11,43,200
81. A. II. B. Bezwada Thermal Station—	
(1) Bezwada Thermal Station	38,200
(2) Distribution of power in the Bezwada area	9,98,000
(3) Third Generating set at Bezwada	200
(4) Pension charges	5,800
Total—81. A. II. B. Bezwada Thermal Station	10,42,200
81. A. II. C. Cocanada Thermal Station—	
(1) Cocanada Thermal Station	3,00,100
(2) Distribution of power in the Cocanada area	1,75,400
(3) Pension charges	1,100
Total—81. A. II. C. Cocanada Thermal Station	4,76,600
81. A. II. D. West Godavari District Electrification Scheme—	
(1) West Godavari District Electrification Scheme	7,900
(2) Pension charges	200
Total—81. A. II. D. West Godavari District Electrification Scheme	8,100
81. A. II. E. Kurnool Scheme—	
(1) Kurnool Thermal Station	3,42,600
(2) Distribution of power in Kurnool	55,600
(3) Pension charges	600
Total—81. A. II. E. Kurnool Scheme	3,98,800
81. A. II. F. Purchase of M.E.S.C.	100*
Post-war Reconstruction Schemes.	
I. Hydro-Electric Schemes—	
(1) Moyar Scheme	66,69,600
(2) Pykara Plant Extensions, III Stage	16,43,700
(3) Madras-Mettur Interconnection	44,21,600
(4) Extension to Kuppam	4,11,900
(5) Papanasam Plant Extensions, II Stage	20,11,200
(6) Madura Thermal Scheme	26,03,500
(7) Machkund Hydro-Electric Scheme	60,31,600
(8) Ceded Districts Scheme	29,74,900
II. Thermal Electric Schemes—	
(1) Vizagapatam Power Station Extensions	16,61,300
(2) Madras Power Station Extensions	49,32,000
(3) Rajahmundry-Samalkot Extension Scheme	33,39,600

* A token provision of Rs. 100 has been made as negotiations for the settlement of the price have not yet been completed.

APPENDIX C.

Details of the establishment charges of the department and fees earned during 1946–47 *and estimated for* 1947–48.

	Expenditure in 1946–47.	Budget, 1947–48.
	RS.	RS.
Chief Engineer's, General Superintendent, Operating systems' and General Superintendent, Power Development's offices including Technical Branch—		
Salaries, allowances, works, etc.	4,49,001	7,24,400
Charges recoverable from Governments and Departments.	(—) 1,49,108	(—) 5,96,700
Net salaries and allowances	2,99,767	1,27,700
Pykara Hydro-Electric Scheme—		
Salaries, allowances, etc.	4,32,860	4,87,200
Less charges payable to or recoverable from Governments and Departments	(—) 18,364	(—) 92,800
Net salaries and allowances	4,14,496	3,94,400
Operation and Maintenance expenses	20,41,959	21,28,000
Total ..	24,56,455	25,22,400
Revenue ..	52,62,905	58,94,600
Net surplus ..	28,06,450	33,72,200
Mettur Hydro-Electric Scheme—		
Salaries, allowances, etc.	4,88,077	5,48,300
Less charges payable to or recoverable from Governments and Departments	(—) 37,815	(—) 3,75,000
Net salaries and allowances	4,50,262	1,73,300
Operation and Maintenance expenses	17,63,542	16,29,600
Revenue	37,09,725	43,34,800
Net surplus ..	14,93,921	25,31,900
Papanasam Hydro-Thermal Scheme—		
Salaries, allowances, etc.	2,69,096	2,83,800
Less charges payable to or recoverable from Governments and Departments	15,173	(—) 30,900
Net salaries and allowances	2,84,269	2,52,900
Operation and Maintenance expenses	5,08,612	5,33,200
Revenue	18,95,154	19,25,000
Net surplus ..	11,02,273	11,38,900
Vizagapatam Thermal Scheme—		
Salaries, allowances, etc.	1,13,076	1,11,600
Less charges payable to or recoverable from Governments and Departments	3,308	(—) 74,200
Net salaries and allowances	1,16,384	37,400
Operation and Maintenance expenses	2,99,556	3,92,900
Revenue	5,27,501	7,46,800
Net surplus ..	1,11,561	3,16,500
Bezwada Thermal Scheme—		
Salaries, allowances, etc.	1,22,040	1,32,700
Less charges payable to or recoverable from Governments and Departments	4,254	(—) 49,300
Net salaries and allowances	1,26,294	83,400
Operation and Maintenance expenses	6,24,289	7,46,300
Revenue	6,52,506	7,70,300
Net deficit or excess ..	(—) 98,077	(—) 59,400

	Expenditure in 1946-47.	Budget, 1947-48.
	RS.	RS.
Cocanada Thermal Scheme—		
Salaries, allowances, etc. ..	41,650	52,600
Less charges payable to or recoverable from Governments and Departments	2,301 (—)	9,900
Net salaries and allowances	43,951	42,700
Operation and maintenance expenses ..	1,20,950	1,47,000
Revenue ..	1,23,381	1,37,400
Net deficit or excess ..	(—) 41,520 (—)	52,300

	1946-47. Revenue.	1946-47. Expenditure.
	RS.	RS.
Chief Electrical Inspector to Government—		
(1) From inspections under the Indian Electricity Act, Cinematograph Act Tests and miscellaneous receipts.	83,000	..
(2) From penalty for excess consumption of electricity ..	2,02,000	1,75,600
(3) From Madras Electricity Duty Act, 1939 ..	9,83,000	..
(4) From use of Government water for generation of electricity ..	20,000	..
Total ..	12,88,000	1,75,600

APPENDIX D-1.

Electric supply undertakings in service.

(a) Local authorities.

1 Anantapur
2 Alandur
3 Bellary
4 Bezwada
5 Bodinayakanur
6 Cocanada
7 Coimbatore
8 Conjeeveram
9 Coonoor
10 Dindigul
11 Dharapuram
12 Hospet
13 Hindupur
14 Karur
15 Kollegal
16 Kodaikanal
17 Masulipatam
18 Madura
19 Ootacamund
20 Palni
21 Pollachi
22 Periyakulam
23 Rameswaram
24 Sembium (Section 28)
25 Sivakasi
26 Tiruppur
27 Tanjore
28 Tiruvottiyur

(a) Local authorities—cont.

29 Tiruvannamalai
30 Tiruvallur
31 Tiruppattur
32 Udamalpet
33 Virudunagar
34 Villivakkam
35 Wellington (Cantonment)

(b) Companies.

1 Adoni
2 Ambur-Vaniyambadi
3 Anakapalle
4 British Cochin
5 Bobbili
6 Calicut
7 Chingleput
8 Chittoor
9 Cuddapah
10 Chicacole
11 Devakottai
12 Ellore
13 East Ramnad
14 Guntur
15 Gudiyattam
16 Gudivada
17 Kanadukathan
18 Karaikudi
19 Kumbakonam

(b) Companies—cont.

20 (i) Madras
(ii) Madras Port
(iii) Madras (Cantonment)
21 Mangalore
22 Mayavaram-Mannargudi-Tiruvarur
23 Nattarasankottai
24 Nellore
25 Narasaraopet
26 Negapatam
27 Neikuppai
28 Okkur
29 Ongole
30 Palghat
31 Proddatur
32 Rajahmundry
33 South Arcot
34 Salem-Erode
35 Srivilliputtur
36 Salur-Parvatipur
37 Trichinopoly-Srirangam
38 Tirumalai-Tirupati
39 Tinnevelly-Tuticorin-Palamcottah
40 Tellicherry-Cannanore
41 Udipi
42 Vizagapatam
43 Vellore
44 Tiruchendur (Section 28)
45 Valparai (township) (Section 28)

APPENDIX D-2.

Licensees under construction.

One East Coast Licence.

APPENDIX D-3.

New applications for licence received.

Two (both rejected).

APPENDIX D-4.

List of undertakings put into service during the year 1946-47—Nil.

APPENDIX D-5.

Licensees who reduced the tariff during the year 1946–47.

1 Kodaikanal.
2 Chingleput.
3 Tiruvellur.
4 Karaikudi.
5 Devakottai.

APPENDIX D-6.

Licensees who increased the tariffs during the year in 1946–47—Nil.

APPENDIX D-7.

Licensees who charge more than 8 *annas per unit for lighting and fans.*

1 Adoni.
2 Cuddapah.

APPENDIX E.

Total capacities of plants installed in electric supply undertakings in service in the Province.

Serial number and name of undertaking.	Total installed capacity of plant in generating station.	Details of plant installed.	Type of prime mover.	Voltage of generation.
		I.—Licensee undertaking.		
1 Adoni	436 K.V.A. ..	2 × 190 + 1 × 56 K.V.A. ..	Oil engine ..	3·3 K.V. (A.C.)
2 Anantapur	152·5 K.W. ..	2 × 63 + 1 × 26·5 K.W. ..	Do. ..	400 V. (A.C.).
3 Chicacole	130·75 K.V.A.	1 × 112 + 1 × 20 K.V.A. ..	Do. ..	400 V. (A.C.).
4 Bellary	380 K.W. (A.C.). 163 K.W. (D.C.).	2 × 190 K.W. (A.C.) .. 1 × 96 + 1 × 67 K.W. (D.C.)	Do. ..	460/500 V. (D.C.). and 400 V (A.C.).
5 British Cochin ..	147·4 K.V.A. ..	2 × 46·2 + 1 × 55 K.V.A. ..	Do. ..	2·2 K.V. (A.C.)
6 Cuddapah	357 K.V.A. ..	1 × 250 + 2 × 53·5 K.V.A. ..	Do. ..	400 V. (A.C.).
7 Hindupur	60 K.W. ..	2 × 25 + 1 × 10 K.W. ..	Do. ..	484 V. (D.C.).
8 Hospet	125 K.V.A. ..	1 × 50 + 1 × 75 K.V.A. ..	Do. ..	400 V. (A.C.).
9 Kollegal	100 K.V.A. ..	2 × 50 K.V.A.	Do. ..	400 V. (A.C.).
10 Madras	51·875 K.V.A.	2 × 1,875 + 1 × 6,250 + 1 × 7,500 + 1 × 15,625 + 1 × 18,750 K.V.A.	Steam turbines ..	5,000 V. (A.C.).
11 Mangalore	750 K.W. ..	3 × 250 K.W.	Oil engine ..	3·3 K.V. (A.C.).
12 Narasaraopet ..	200 K.V.A. ..	2 × 100 K.V.A.	Do. ..	420/243 V. (A.C.).
13 Nellore	490 K.V.A. ..	1 × 64 + 2 × 133 + 1 × 160 K.V.A.	Do. ..	400 V. (A.C.).
14 Ongole	116·6 K.V.A. ..	1 × 66·6 + 1 × 50 K.V.A. ..	Do. ..	3·3 K.V. and 400 V. (A.C.).
15 Proddatur	96 K.W. ..	2 × 48 K.W.	Do. ..	400 V. (A.C.).
16 Rajahmundry ..	560 K.V.A. ..	2 × 133 + 1 × 294 K.V.A. ..	Do. ..	3·3 K.V. (A.C.).
17 Salur-Parvatipur.	20 K.W. ..	1 × 20 K.W.	Do. ..	400/440 V. (A.C).
18 Tellicherry-Cannanore.	680 K.V.A. ..	3 × 135 + 1 × 275 K.V.A. ..	Do. ..	400 V. (A.C.).
19 Udipi	184 K.V.A. ..	1 × 144 + 1 × 40 K.V.A. ..	Do. ..	400 V. (A.C.)
	55,401·75 K.V.A. + 1,621·5 K.W.			
	or 45,943 K.W.			45,943 K.W.
		II.—Government undertakings.		
1 Pykara	48,430 K.V.A. ..	3 × 7,810 .. .. .. 2 × 12,500		.. 120,180 K.V.A.
2 Mettur	50,000 ,, ..	4 × 12,500		
3 Papanasam ..	21,750 ,, ..	3 × 7,250		
4 Vizagapatam ..	3,750 ,, ..	2 × 1,500 .. .. .. 1 × 750		.. 10,800 K.V.A.
5 Bezwada	6,000 ,, ..	2 × 1,500 .. .. .. 1 × 3,000		
6 Cocanada	710 ,, ..	2 × 80 .. .. .. 1 × 250 .. .. .. 1 × 300		
7 Kurnool	840 ,, ..	1 × 60 .. .. .. 1 × 130 .. .. .. 1 × 150		

APPENDI

Table of electric supply costs and

Serial number and name of undertaking.	Year of operation.	Year of accounts to which the figures refer.	System and supply of voltage.	Total generation or purchase cost per unit.	Working cost per unit sold. (*See* Note 2.)	Revenue per: Lights and fans.	Power.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				AS.	AS.	AS.	AS.
1 Adoni	8th ..	1945–46 ..	A.C. 400/230 V, 50 cycles.	1·63	4·19	6·62	1·00
2 Ambur-Vaniambadi	9th ..	1945–46 ..	Do. ..	0·63	1·76	4·57	1·01
3 Anakapalle ..	8th ..	1945–46 ..	Do. ..	1·57	3·42	4·98	1·45
4 British Cochin ..	22nd ..	1945–46 ..	Do. ..	3·34	6·47	5·42	4·75
5 Bobbili	8th ..	1945–46 ..	Do. ..	1·37	2·19	4·18	1·02
6 Calicut	17th ..	1945–46 ..	Do. ..	2·66	5·64	4·77	1·06
7 Chittoor	12th ..	1945–46 ..	Do. ..	0·72	2·36	4·74	1·17
8 Cuddapah	9th ..	1945–46 ..	Do. ..	2·06	4·02	6·56	1·66
9 Chingleput ..	8th ..	1945–46 ..	Do. ..	0·68	1·64	5·54	0·92
10 Cannanore-Tellicherry. ..	8th ..	1945–46 ..	Do. ..	2·20	4·87	5·65	1·25
11 Chicacole	8th ..	1945–46 ..	Do. ..	2·75	5·72	5·88	2·00
12 Devakottai ..	22nd ..	1945–46 ..	Do. ..	0·65	2·14	5·18	1·46
13 East Tanjore ..	12th ..	1945–46 ..	Do. ..	0·48	1·69	3·98	0·86
14 East Ramnad ..	8th ..	1945–46 ..	Do. ..	0·50	1·04	4·79	0·72
15 East Coast ..						No accounts.	
16 Ellore	9th ..	1945–46 ..	Do. ..	1·32	4·05	6·18	1·13
17 Guntur	14th ..	1945–46 ..	Do. ..	0·94	2·20	5·19	1·20
18 Gudiyattam ..	9th ..	1945–46 ..	Do. ..	0·57	0·93	3·32	2·57
19 Gudivada	9th ..	1945–46 ..	Do. ..	1·36	4·20	5·06	1·58
20 Kanadukathan ..	22nd ..	1945–46 ..	Do.	0·63	2·00	4·71	1·59
21 Kumbakonam ..	14th ..	1945–46 ..	Do. ..	0·53	1·94	4·32	0·99
22 Karaikudi	16th ..	1945–46 ..	Do. ..	0·7	2·24	4·52	1·41
23 Madras	38th ..	1945–46 ..	D.C. 450/225 V, A.C. 440/250 V, 50 cycles. ..	0·51	1·21	2·98	1·06
24 Mangalore	13th ..	1945–46 ..	A.C. 400/230 V, 50 cycles. ..	0·86	2·60	4·95	1·01
25 Nellore	12th ..	1945–46 ..	Do. ..	1·41	3·74	6·11	2·16
26 Negapatam ..	11th ..	1945–46 ..	Do. ..	0·65	1·15	3·71	1·16
27 Nattarasankottai ..	13th ..	1945–46 ..	Do. ..	0·73	2·46	5·71	1·22
28 Narasaraopet ..	8th ..	1945–46 ..	Do. ..	2·71	4·93	5·48	1·79
29 Neikuppai	7th ..	1945–46 ..	Do. ..	0·78	2·30	4·78	1·12
30 Okkur	11th ..	1945–46 ..	Do. ..	0·71	2·69	5·45	1·32
31 Ongole	8th ..	1945–46 ..	Do. ..	4·25	8·92	7·46	7·30
32 Ponnani						No accounts.	
33 Palghat	13th ..	1945–46 ..	Do. ..	0·70	2·51	3·94	1·06
34 * Proddattur ..							
35 Rajahmundry ..	18th ..	1945–46 ..	Do.	1·31	2·82	4·88	1·75
36 Salem-Erode ..	14th ..	1945–46 ..	Do.	0·49	1·07	5·44	0·86
37 South Arcot ..	11th ..	1945–46 ..	Do. ..	0·50	1·23	4·46	1·02
38 Salur-Parvatipur ..	7th ..	1945–46 ..	Do. ..	{2·41 1·56	6·07	5·53	1·47
39 Srivilliputtur ..	8th ..	1945–46 ..	Do. ..	0·50	0·85	4·32	0·64
40 Trichinopoly-Srirangam.	18th ..	1945–46 ..	Do. ..	0·30	0·74	3·00	0·55
41 Tinnevelly-Tuticorin.	13th ..	1945–46 ..	Do. ..	0·47	1·395	3·05	0·24
42 * Tirupati ..							
43 Udipi	7th ..	1945–46 ..	Do. ..	1·84	4·44	6·05	2·30
44 Vellore	15th ..	1945–46 ..	Do. ..	0·61	1·56	3·70	1·08
45 Vizagapatam ..	12th ..	1945–46 ..	Do. ..	1·02	1·99	3·18	1·47

* Figures not available.

F.1.

records—Company licensees.

unit sold.								
Special contract.	Street lighting.	Total—(*See* Note 4.)	Total—Expenditure against revenue. (*See* Note 3.)	Revenue from electric supply.	Total revenue from working.	Net profit (+) or — up to the end of the year.	Total capital expenditure up to the end of the year.	Serial number.
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
AS.	AS.	AS.	RS.	RS.	RS.	RS.	RS.	
..	6·39	5·91	38,148	43,038	53,787	13,278	2,32,609	1
..	2·00	2·14	66,531	71,662	81,198	9,532	2,74,232	2
..	4·90	4·01	35,803	35,520	41,969	(+) 1,147	88,639	3
..	5·28	6·32	47,404	38,596	46,469	(—) 2,869	1,22,232	4
..	3·69	2·10	36,067	27,178	34,575	(—) 11,139	38,582	5
..	8·18	5·93	3,32,250	2,32,866	3,52,834	15,291	11,05,005	6
..	3·49	2·81	51,415	58,535	61,160	(—) 8,284	1,41,419	7
..	3·68	4·59	69,178	53,318	79,432	3,885	2,32,432	8
2·26	2·00	2·03	45,245	52,610	56,253	3,990	1,40,135	9
..	4·27	4·93	1,06,147	80,972	1,07,891	14,639	4,49,616	10
..	3·40	5·84	35,232	26,241	36,421	8,306	1,78,136	11
4·81	1·54	3·06	60,623	76,634	88,461	21,993	2,49,165	12
3·12	1·79	1·53	5,90,736	4,94,134	5,39,833	(—) 1,08,673	22,22,840	13
4·91	1·90	1·14	2,42,624	2,47,475	2,68,840	1,922	8,21,435	14
								15
..	7·75	5·60	56,237	55,601	80,676	19,493	2,70,941	16
..	2·01	2·46	2,85,750	2,44,480	3,20,098	24,355	7,41,255	17
..	3·64	1·00	1,04,809	1,09,927	1,14,233	8,975	1,59,013	18
1·75	3·38	4·97	32,967	26,065	39,759	(—) 7,270	99,162	19
0·73	1·91	2·36	1,18,987	1,18,218	1,41,205	23,425	6,28,348	20
2·16	1·88	1·40	2,86,237	3,00,351	3,27,681	37,130	9,08,696	21
4·44	1·64	3·1	82,929	1,07,885	1,17,020	34,145	4,05,074	22
0·82	1·2[illegible]	1·41	52,33,121	52,00,473	62,30,446	9,97,326	2,28,70,485	23
..	2·47	3·40	2,34,012	2,84,820	3,09,968	(—) 68,878	8,71,732	24
1·68	3·99	4·40	1,17,133	99,177	1,37,786	21,250	4,55,915	25
0·66	1·90	1·35	1,43,932	1,49,401	1,68,987	19,043	3,31,799	26
..	1·98	3·08	39,446	44,811	49,811	10,061	1,60,206	27
2·73	2·75	4·78	38,811	24,076	40,227	2,802	1,20,348	28
0·75	2·33	2·18	24,169	16,869	22,877	(—) 1,293	86,052	29
..	1·85	2·94	54,698	52,010	60,612	(—) 1,649	2,11,701	30
2·55	4·32	8·54	35,214	23,487	33,784	(—) 18,903	1,13,351	31
								32
..	1·70	2·88	82,827	87,167	95,553	8,218	2,41,571	33
								34
..	4·00	3·39	1,55,057	1,78,795	1,87,285	16,404	5,28,928	35
0·65	6·45	1·195	6,56,813	7,41,043	7,46,110	(—) 41,361	10,48,640	36
0·76	2·00	1·40	4,89,847	5,16,444	5,57,963	56,965	14,60,452	37
..	4·02	7·07	18,646	14,685	21,762	3,145	1,10,771	38
2·45	3·33	1·04	1,29,304	1,51,509	1,58,579	30,362	2,25,469	39
0·05	1·74	0·77	10,50,675	10,39,758	10,99,421	2,50,801	29,97,159	40
1·86	2·00	2·10	3,53,092	4,99,089	5,34,750	(—) 51,952	12,76,088	41
								42
1·56	7·04	5·56	44,261	39,957	55,535	11,688	2,37,848	43
..	2·62	2·1	1,95,071	2,64,904	2,76,200	18,519	5,42,573	44
1·71	2·23	2·45	2,39,895	2,72,886	2,96,839	26,944	4,83,864	45
						M.E.S.C.	2,28,70,485	
						Others	2,10,13,433	

APPENDIX

Table of electric supply costs and

Serial number and name of undertaking.	Year of operation.	Year of accounts to which the figures refer.	Depreciation for the year.	Depreciation fund at the end of the year.	Other reserves, special reserve at the end of the year.	Total capacity.	Maximum load on the feeders.
			(17)	(18)	(19)	(20)	(21)
			RS.	RS.	RS.		
1 Adoni	8th	1945–46 ..	..	24,899	..	346 K.W.	120 K.W.
2 Ambur-Vaniambadi.	9th	1945–46 ..	11,250	43,750	..	525 K.V.A.	205
3 Anakapalle ..	8th	1945–46 ..	3,411	24,374	..	175 K.V.A.	90 K.W.
4 British Cochin ..	22nd	1945–46 ..	4,845	18,800	..	105 K.W.	64 K.W.
5 Bobbili	8th	1945–46 ..	1,601	13,132	880	200 K.V.A.	119·5 K.W.
6 Calicut	17th	1945–46 ..	50,260	3,02,400	34,980	820 K.W.	405
7 Chittoor	12th	1945–46 ..	5,312	42,558	..	175 K.V.A.	145 K.W.
8 Cuddapah	9th	1945–46 ..	5,137	48,405	296	230 K.W.	150 K.W.
9 Chingleput ..	8th	1945–46 ..	5,960	24,216	..	250 K.V.A.	143 K.W.
10 Cannanore-Tellicherry.	8th	1945–46 ..	16,500	74,172	..	486 K.W.	190 K.W.
11 Chicacole	8th	1945–46 ..	..	20,000	..	Chicacole 92 Narasannapet, 15.	53 14
12 Devakottai ..	22nd	1945–46 ..	7,539	88,736	16,230	265 K.V.A.	232·50 K.W.
13 East Tanjore ..	12th	1945–46 ..	60,179	4,24,121	..	5,129 K.V.A.	1,695 K.W. 83 K.W. 104
14 East Ramnad ..	8th	1945–46 ..	23,461	1,38,711	..	2,420 K.V.A.	1,110 K.W. 42·5 K.W.
15 East Coast				No accounts.			
16 Ellore	9th	1945–46 ..	8,734	76,720	..	..	120 „
17 Guntur ..	14th	1945–46 ..	18,500	1,53,500	4,832	650 K.V.A.	100 K.W.
18 Gudiyattam ..	9th	1945–46 ..	8,013	48,912	..	..	495
19 Gudivada ..	9th	1945–46 ..	3,000	20,383	..	175 K.V.A.	73 K.V.A.
20 Kanadukathan ..	22nd	1945–46 ..	16,158	1,95,524	..	..	364·62
21 Kumbakonam ..	14th	1945–46 ..	36,860	2,41,050	45,943	2,093 K.V.A.	1,060 K.V.A.
22 Karaikudi	16th	1945–46 ..	14,614	1,55,495	1,253	580 K.W.	276 K.W.
23 Madras	38th	1945–46 ..	6,66,667	98,18,097	11,06,388	43.000 K.W.	17,400 K.W.
24 Mangalore	13th	1945–46 ..	38.015	4,17,258	..	750 K.V.A.	548 K.W.
25 Nellore	12th	1945–46 ..	9,500	50,000	778	376 K.W.	255 K.W.
26 Negapatam ..	11th	1945–46 ..	14,078	92,655	..	..	980 K.W.
27 Nattarasankottai ..	13th	1945–46 ..	5,903	46,972	..	275 K.V.A.	121 K.V.A.
28 Narasaraopet ..	8th	1945–46 ..	..	9,000	1,000	160 K.W.	70 K.W.
29 Naikuppai	7th	1945–46 ..	3,665	24,246	..	..	100 K.V.A.
30 Okkur	11th	1945–46 ..	10,007	39,979	1,599	..	122 K.W.
31 Ongole	8th	1945–46 ..	..	6,000	..	50 K.W.	50 K.W.
32 Ponnani	..			No accounts.			
33 Palghat	13th	1945–46 ..	8,763	87,669	12,167	350 K.V.A.	220 K.W.
34 Proddattur * ..	..	..	..	..	..	..	..
35 Rajahmundry ..	18th	1945–46 ..	14,016	2,26,660	16,550	435 K.W.	335 K.W.
36 Salem-Erode ..	14th	1945–46 ..	45,867	4,98,535	2,16,868	1,240 K.V.A.	1,612 K.W. 410 K.W. 543 K.W.
37 South Arcot ..	11th	1945–46 ..	57,648	2,24,866	..	..	1630·5 K.W. 197·5 K.W.
38 Salur-Parvatipur ..	7th	1945–46 ..	..	2,487	..	20 K.W., Parvathipur. 50 K.V.A., Trns Salur.	22·6 K.V.A., Salur. 24 K.W., Parvathipur.
39 Srivilliputtur ..	8th	1945–46 ..	9,527	55,930	24,879	2 Nos.—100 K.V.A. 2 Nos.—250 K.V.A. 1 No.—100 K.V.A.	T.R. 582·5 K.W.
40 Trichinopoly-Srirangam.	18th	1945–46 ..	84,727	7,04,603	20,000	11,372 K.V.A. ; 4,360.	101 K.W.
41 Tinnevelly-Tuticorin	13th	1945–46 ..	49,904	4,59,633	..	2,000 K.V.A.	960 K.W.
42 Tirupathi *	..	..	..	..	..	..	..
43 Udipi	7th	1945–46 ..	3,500	13,500	500	15 K.W. at Karaikal. 147 K.W. at Udipi.	16 K.W. at Karaikal. 105 at Udipi.
44 Vellore	15th	1945–46 ..	22,646	1,99,753	..	..	645 K.W.
45 Vizagapatam ..	12th	1945–46 ..	20,894	1,61,381	17,881	..	685 K.V.A.

* Figures not available.

NOTES.—(1) All the figures have been calculated on a uniform basis
(2) Total expenditure including interest, income-tax paid, expenses and interest paid on Consumers' security
(3) Same as Note (2) above.
(4) Excluding supervision charges for service connexions.

F-1—*cont.*

records—Company licensees—cont.

Units generated.	Units purchased.	Load factor. per cent.	Total number of units sold.	Total number of consumers at the end of the year.	Dividend on ordinary shares.	Population of area.	Serial number.
(22)	(23)	(24)	(25)	(26)	(27)	(28)	
174,707	..	13·85	145,649	386	4 per cent.	40,000	1
..	677,423	33·62	603,950	920	6 per cent free of tax.	61,500	2
..	202,116	21·25	167,624	263	3 Do.	36,000	3
34,942	95,890	20·93	117,324	304	..	26,200	4
..	299,702	25·17	263,373	173	..	14,469	5
1,206,908	..	26·57	942,508	2,317	..	120,000	6
..	428,020	27·38	347,878	561	6 per cent free of tax.	30,000	7
321,207	..	21	275,636	625	..	35,000	8
..	466,254	35·30	442,230	373	5 per cent free of tax.	60,000	9
400,560	..	20·96	348,851·7	1,241	..	100,000	10
108,074	..	16·55	98,519	502	..	40,000	11
..	600,812,39	22·16	452,355·40	793	7 per cent.	28,000	12
..	6,676,806	33·93	5,594,630	8,335	6½ per cent free of tax.	1,611,162	13
..	4,119,165	37·13	3,750,294	2,128	Do.	1,207,243	14
							15
..	251,987	21·13	222,055	819	4 per cent.	70,000	16
..	2,374,289	31·59	2,075,258	1,688	Do.	150,000	17
..	1,907,044	41·65	1,805,561	648	..	54,000	18
..	181,230	19·63	125,499	406	4 per cent free of tax.	30,000	19
..	1,172,472·2	29·80	951,646·5	1,218	8 Do.	53,086	20
..	2,955,087	25·44	2,362,209	3,317	6 per cent.	100,000	21
..	741,180	24·55	593,380	1,093	6½ per cent free of tax.	30,000	22
60954,380	..	45·36	69,139,933	16,109	6 per cent less tax.	1,800,000	23
1,750,310	..	29·95	1,438,476	1,837	..	99,060	24
630,058	..	22·44	501,066	897	4 per cent.	57,970	25
..	2,136,091	23·28	1,997,749·2	1,154	6 per cent.	55,000	26
..	316,639	24·23	256,937·27	642	..	20,000	27
145,105	..	20·56	126,029	463	..	18,000	28
..	179,139	19·15	167,848	206	..	12,823	29
..	429,865	30·43	325,200	484	..	15,000	30
84,625	..	14·38	63,019·2	252	..	26,000	31
							32
..	622,552	27·45	528,938	1,183	4 per cent free of tax.	60,000	33
..	..	..	..	..	..	..	34
1,047,098	..	29·96	879,242	1,146	6 per cent.	82,000	35
..	10,619,140	46·58	9,863,077	4,662	5 per cent.	224,272	36
..	6,779,621	37·79 40·58 39·65	6,345,616	3,142	5 per cent.	160,000	37
18,484	35,339	12·84	49,149	319	..	39,500	38
..	2,527,705	47·32	241,684	900	6½ per cent.	80,000	39
..	24,668,320	58·03	22,678,142	9,515	6½ per cent free of tax.	1,796,763	40
..	4,617,160	48·16	4,050,113	4,431	..	250,000	41
..	..	..	..	..	..	..	42
192,844	..	15·68 (Udipi) 10·74 (Karaikal)	159,315	611	4 per cent free of tax.	29,100	43
..	2,200,338	35·51	2,007,259	2,053	6½ per cent.	126,889	44
..	2,239,850	32·17	1,929,994	1,509	6 per cent income-tax.	150,000	45

according to standard practice.
preference-dividends, amounts written off towards preliminary
deposits but less service connexton charges.

APPENDIX

Table of electric supply costs and

Serial number and name of undertaking.	Year of operation.	Year of accounts to which the figures refer.	System and voltage of supply.	Total generation or purchases cost per unit.
(1)	(2)	(3)	(4)	(5)
				AS.
1 Alandur *	..	..	..	..
2 Anantapur	8th	1945–46	A.C. 400/230 V. 50 cycles	1·90
3 Bellary	19th	Do.	D.C. 460/230 V. ... A.C. 400/230 V. 50 cycles	1·46
4 Bezwada	16th	Do.	A.C. 400/230 V. 50 cycles	0·89
5 Boinayakkanur	11th	Do.	Do.	0·78
6 Coimbatore	13th	Do.	Do.	0·51
7 Cocanada	17th	Do.	Do.	1·39
8 Conjeeveram	15th	Do.	Do.	0·71
9 Coonoor	17th	Do.	Do.	0·74
10 Dindigul	12th	Do.	Do.	0·62
11 Dharapuram	7th	Do.	Do.	0·74
12 Hindupur	16th	Do.	D.C. 460/230 V.	2·47
13 Hospet	11th	Do.	A.C. 400/230 V. 50 cycles	
14 Kurnool	16th	Do.	Do.	2·06
15 Karur	10th	Do.	Do.	0·71
16 Kodaikanal	8th	Do.	Do.	0·83
17 Kollegal	6th	Do.	A.C. 400/230 V.	4·31
18 Madura	19th	Do.	A.C. 400/230 V. 50 cycles	0·47
19 Masulipatam	13th	Do.	Do.	1·16
20 Ootacamund	23rd	Do.	Do.	0·58
21 Pollachi	13th	Do.	Do.	0·64
22 Palni	11th	Do.	Do.	0·73
23 Periyakulam	11th	Do.	Do.	0·77
24 Rameswaram Panchayat Board	7th	Do.	A.C. 400/230 V. 3 ph.	..
25 Sembiem *	..	..	..	..
26 Sivakasi	10th	1945–46	A.C. 400/230 V. 50 cycles	0·75
27 Trivellore	9th	Do.	Do.	0·72
28 Tiruppur	12th	Do.	Do.	0·67
29 Tanjore	18th	Do.	Do.	0·59
30 Tiruvottiyur	13th	Do.	Do.	1·17
31 Tirupattur	8th	Do.	Do.	0·77
32 Tiruvannamalai	8th	Do.	Do.	0·68
33 Udamalpet *				
34 Virudunagar	12th	1945–46	A.C. 400/230 V. 50 cycles	0·63
35 Villivakkam	9th	Do.	Do.	1·50
36 Wellington.				No details

* Figures

NOTES.—(1) All figures are calculated on a uniform
(2) Total expenditure including loan
(3) Excluding supervision charges for
(4) The undertaking was closed on 12th

F-2.

records—Local authority undertakings.

Working cost per unit sold.	Revenue per unit sold. Lights and fans.	Power.	Special contract.	Street lighting.	Total—*See* Note (3).	Total expenditure against revenue—*See* Note (2).	Revenue from electric supply.	Serial number.
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
AS.	AS.	AS.	AS.	AS.	AS.	RS.	RS.	
..	..	..	..	..	..	..	..	1
4·63	5·4	1·11	..	4·70	4·60	42,284	33,806	2
4·66	5·22	2·09	6·22	3·05	4·8	1,15,630	9,389	3
1·62	4·80	1·24	0·77	2·10	1·51	2,17,932	2,50,277	4
2·31	4·00	1·04	..	2·00	2·45	26,383	24,595	5
1·34	2·88	0·98	0·70	1·35	2·06	3,18,995	4,67,111	6
3·18	3·71	1·33	..	5·08	3·39	1,58,117	1,38,842	7
2·61	3·77	1·24	..	2·00	2·72	1,04,639	97,986	8
2·60	3·58	1·34	..	2·00	2·89	73,792	74,406	9
1·38	3·14	0·90	1·23	2·00	1·74	1,04,230	1,27,747	10
2·28	4·07	1·06	..	1·84	2·34	37,811	34,808	11
6·68	6·58	1·38	..	3·5	6·04	31,758	19,327	12
	See Note (4).					6,975	See No:e (4)	13
9·01	5·12	1·53	..	2·50	4·98	88,981	41,663	14
1·88	3·93	0·99	..	2·00	2·25	55,406	62,504	15
5·64	6·88	1·76	..	3·85	5·87	55,590	55,224	16
9·09	5·08	1·89	..	3·00	5·32	25,945	10,259	17
1·15	3·05	0·88	0·64	1·25	1·63	4,59,545	6,44,885	18
3·87	5·91	1·30	1·04	3·00	3·80	1,06,436	69,716	19
1·51	2·92	1·30	0·85	2·00	1·76	2,18,247	2,50,040	20
1·50	3·84	0·99	..	2·00	1·63	81,642	85,846	21
1·81	3·48	0·98	..	2·00	2·12	38,161	42,287	22
2·45	3·95	1·03	..	2·00	2·35	31,586	28,239	23
8·44	6·88	..	..	5·49	8·64	7,370	5,679	24
..	..	..	..	..	..	..	..	25
4·09	4·08	1·02	1·78	2·00	2·12	33,279	30,110	26
2.38	5·71	1·32	..	2·93	2·57	29,224	29,172	27
1·61	3·69	1·07	..	2·00	1·87	94,128	1,03,454	28
1·37	3·00	1·04	0·65	1·98	1·73	1,39,748	1,66,844	29
2·03	4·20	1·09	2·88	4·44	2·16	36,520	30,293	30
2·22	4·07	1·04	..	2·00	2·15	33,345	30,782	31
1·75	3·55	0·91	1·41	2·00	1·78	45,192	44,355	32
..	..	..	..	..	..	..	..	33
1·44	3·96	0·88		2·00	1·68	87,258	97,613	34
3·49	4·48	1·35	..	3·00	3·44	11,131	7,406	35
available.								36

not received.
basis according to standard practice.
charges but less service connexion.
service connexion.
August 1944 due to breakdown of the engines and remained closed throughout the year 1945-46.

APPENDIX

Table of electric supply costs and

Serial number and name of undertaking.	Total Revenue from working.	Net profit (+) or (−) up to the end of the year.		Loans repaid during the year.	Total capital expenditure up to the end of the year.
	(14)		(15)	(16)	(17)
	RS.		RS.	RS.	RS.
1 Alandur *	..		..	..	..
2 Anantapur	42,251	(−)	821	7,488	1,75,579
3 Bellary	1,20,586		23,808	20,576	3,77,007
4 Bezwada	2,04,077		16,707	24,325	4,42,656
5 Bodinayakkanur	27,961	(−)	12,059	3,538	71,457
6 Coimbatore	5,02,003		..	32,323	8,47,899
7 Cocanada	1,69,458	(−)	16,453	17,801	3,69,036
8 Conjeeveram	1,09,518		78,988	21,347	4,39,511
9 Coonoor	82,855		8,863	8,531	2,08,112
10 Dindigul	1,31,740		62,997	11,335	2,67,162
11 Dharapuram	38,723		364	5,137	1,12,489
12 Hindupur	28,724	(−)	2,950	6,028	1,38,019
13 Hospet	164		4,091	See Note (4)	1,63,988
14 Kurnool	77,845	(−)	11,136	17,045	3,48,303
15 Karur	66,455		..	3,299	1,37,757
16 Kodaikanal	58,466		8,232	9,936	1,16,255
17 Kollegal	15,175		..	3,897	98,167
18 Madura	6,58,362		5,25,682	57,125	11,02,558
19 Masulipatam	1,04,809		10,158	25,551	2,18,563
20 Ootacamund	2,57,632		8,898	25,590	8,30,996
21 Pollachi	89,916		..	8,810	2,25,064
22 Palni	44,725		16,969	3,680	84,065
23 Periyakulam	30,216	(−)	19,238	4,317	89,067
24 Rameswaram Panchayat Board	7,564		2,273	1,405	33,929
25 Sembiem *	..		..	..	..
26 Sivakasi	34,617		6,786	5,614	1,06,055
27 Trivellore	31,603		438	5,701	89,767
28 Tiruppur	1,10,897		58,918	9,302	2,65,790
29 Tanjore	1,76,245		44,127	17,456	4,99,704
30 Tiruvottiyur	39,003		7,749	1,550	78,202
31 Tirupattur	32,398	(−)	10,432	5,185	1,18,572
32 Tiruvannamalai	46,099		4,542	6,709	1,47,801
33 Udamalpet *	..		..	..	..
34 Virudunagar	1,02,244		3,098	9,621	2,41,838
35 Villivakkam	11,024		3,476	1,655	35,660
36 Wellington			No details available.		

* Figures

F-2—*cont.*

records—Local authority undertakings—cont.

Population of area.	Total capacity.	Maximum load on the feeders.	Units generated.	Units purchased.	Load factor per cent.	Total number of units sold.	Number of consumers at the end of the year.	Serial number.
(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	
..	..	..	..	..	..	..	..	1
22,000	125 KW	74 KW	168,541	..	22·56	146,171	345	2
56,056	542	250	580,944	..	18·14	397,195	952	3
87,656	825 KVA	639 KW	..	2,415,710	38·46	2,152,863	1,623	4
32,000	150 KVA	133	..	198,398	15·69	182,848	340	5
130,354	1,675 KW	1,470 KW	..	4,349,642	29·68	3,821,922	4,713	6
75,146	450 KVA	265·5 KW	..	906,817	34·20	795,322	996	7
84,000	430 KVA	266 KVA	..	722,281	27·51	641,024	1,148	8
18,781	400 KVA	222 KW	..	534,360	23·36	454,331	805	9
75,000	725 KVA	462 KVA	..	1,371,221	29·81	1,206,536	1,113	10
20,666	150 KVA	100 KVA	..	281,839	30·27	265,152	406	11
18,978	60 KW	39·6 KW	82,648	..	21·92	76,056	260	12
26,013			See Note (4).					13
45,174	450 KW	135 KW	272,952	..	5·78	227,907	562	14
27,575	300 KVA	135 KW	..	511,086	39·88	471,700	771	15
9,124	175 KVA	118 KW	..	175,019	15·25	157,724	348	16
15,089	80 KW	43 KW	54,787	..	12·12	45,657	150	17
239,167	3,200 KVA	2,180 KW	..	7,642,351	33·52	6,401,387	4,958	18
59,146	250 KVA	167·5 KW	..	505,644	29·97	439,712·2	724	19
29,899	600	965	..	256,825	27·36	2,312,717	1,430	20
26,198	600 KVA	270 KW	..	1,015,413	36·89	872,447	730	21
24,700	225 KVA	133 KW	..	362,214	28·90	336,837	439	22
25,882	150 KVA	99 KVA	..	228,862	23·76	206,075	363	23
5,778	..	18 KW	..	..	8·86	13,965	102	24
..	..	..	..	..	..	..	..	25
16,627	150 KVA	86 KW	..	282,681	34·66	261,227	324	26
13,300	150 KVA	70·4 KW	..	238,980	3·19	196,853	212	27
38,099	1,125	470 (3/46)	..	1,085,933	22·75	936,460	939	28
68,722	1,000 KVA	535 KW	..	1,778,812	34·73	1,628,145	1,478	29
17,000	350 KVA	146 KVA	..	336,285	22·50	287,785	117	30
22,187	175 KVA	92 KW	..	248,288	29·81	240,258	..	31
33,575	150 KVA	124 KW	..	456,196	37·98	412,841	419	32
..	..	..	..	..	..	..	..	33
34,560	475 KVA	337 KVA	..	1,073,427	32·82	968,679	1,043	34
8,881	100 KVA	44 KVA	..	57,912	13·23	51,000	87	35
8,255	50 KVA	50 KW	..	90,050	..	83,353	109	36

not received.

APPENDIX

Statistical data regarding number of units generated or purchased, sold, connected

Serial number and name of licensee.	Number of units generated.	Number of units purchased.	Number of units sold.	Maximum demand in K.W.
(1)	(2)	(3)	(4)	(5)
1 Madras	82,269,460	..	68,355,507	17,400
2 Kanadukathan	..	1,007,947·7	808,025·4	372·86 K.V.A.
3 Devakottai	..	591,832·85	428,441·46	224 K.W.
4 British Cochin	7,150	150,610	146,845	70
5 Trichinopoly-Srirangam	..	24,668,472	22,167,246	4,480 Trichinopoly. 85 Mayanur.
6 Rajahmundry	1,208,635	..	1,038,627	345
7 Calicut	1,671,066	..	1,373,456	480
8 Karaikudi	..	875,370	704,602·6	305 K.V.A.
9 Vellore	..	2,607,995	2,198,541	760
10 Guntur	..	2,637,779	2,235,883	725 K.V.A. at Tenali. 79 K.W. at Sitanagaram.
11 Kumbakonam	..	2,963,905	2,281,909·5	930
12 Nattarasankottai	..	819,403	264,566	126
13 Salem-Erode	..	10,801,772	9,870,079	1,800 Salem. 536·5 Erode. 404 at Sankaridrug. 7 at Pallipalayam
14 Mangalore	1,872,405	..	1,578,450	718 K.V.A.
15 Palghat	..	755,599	650,350	316
16 Tinnevelly-Tuticorin	..	4,228,655	3,711,996	960
17 East Tanjore	..	6,347,701	5,281,102	1,665 Tiruvarur. 81 Vallam. 102 Arantangi.
18 Nellore	797,196	..	658,857	272
19 Tirupathi-Tirumalai	..	1,032,494	789,330·6	244
20 Chittoor	..	511,642	430,001	180
21 Negapatam	..	1,895,574	1,741,339·5	1,060
22 Okkur	..	446,197·0	319,986·4	132
23 Proddatur	75,651	..	54,843	58
24 South Arcot	..	8,175,713·500	7,016,694	977 2,240 at Villupuram. 227·5 at Chidambaram.
25 Vizagapatam	..	2,496,645	2,116,671	738
26 Adoni	192,325	..	158,644	145
27 Gudiyattam	..	1,991,637	1,802,891·35	450 K.W. at Vadakattipatti. 150 K.W. at Nariampet.
28 Gudivada	..	157,034	149,369	81
29 Ellore	..	402,844	303,681	161
30 West Ramnad	..	2,958,535	2,771,577	690
31 Narasaraopet	150,284	..	135,692	70
32 Ongole	86,165	..	76,793	65
33 Cuddapah	313,615·19	..	249,683·19	130
34 Ambur-Vaniyambadi	..	844,440	736,868	288·75
35 Chingleput	..	593,740	549,873	185
36 Tellicherry-Cannanore	404,293	..	354,281	220
37 Chicacole	146,711	..	123,378	80 Chicacole. 17 Narasannapet.
38 Bobbili	..	240,060	203,118·42	109
39 Anakapalli	268,396	..	226,638·8	110
40 Udipi—(Udipi)	225,516	..	185,920	125
41 East-Ramnad	..	4,173,784	3,751,418	1,220 at Sivaganga. 45 at Singapunari.
42 Salur-Parvathipur	20,625 Parvathipur.	52,064 (Salur).	67,096	18 at Parvathipur. 35 at Salur.
43 Neikuppai	152,469·8	..	147,153·59	80
44 Tiruchendur (*a*)	..	..	..	..
45 Valparai	..	35,995	35,746	19,210
46 East Coast—Supply not yet commenced.				
47 Ponnani—Supply not yet commenced.				
	89,861,962·99			

F-3.

load, etc., for the year ending 31*st March* 1947—(*Company licensees*).

Total connected load at the end of 1946–47 in K.W.							
	Industrial.						
Municipal.	Textiles.	Cement.	Chemicals.	Steel rolling mills.	Small industries.	Railways.	Serial number.
(6)	(7)	(8)	(9)	(10)	(11)	(12)	
703	..	..	..	..	16,285	2,410	1
..	..	..	..	.	208·87	..	2
54·910	..	..	..	..	165·050	..	3
10	..	..	..	..	80	..	4
151	1,110	2,270	..	..	3,702	199	5
125	8	..	..	..	212	31	6
39·64	..	..	..	..	788·47	..	7
57·6	1·6	..	..	..	126·42	7·0	8
85·26	..	..	189·50	..	1,238·25	18·00	9
..	300	80	..	..	467·651	20	10
..	..	..	..	..	1,420	10	11
..	..	..	..	..	142	..	12
97·995	1,731·795	..	..	..	3,889·71	30·12	13
59·895	..	..	..	..	1,747·359	2·7	14
23·0	..	..	..	..	432·5	..	15
130·505	590	..	..	..	2,475·147	11·070	16
47·11	..	..	..	..	3,744·21	65·35	17
100·35	..	..	..	..	93·38	82·2	18
10·98	7·880	..	..	..	309·725	6·363	19
18·15	..	..	..	..	33·25	2·00	20
27·7	..	..	..	2,407·50	550·6	12·25	21
..	..	..	..	..	..	..	22
14·0	..	..	..	..	28·5	..	23
52·420	..	..	..	..	1,502·266	123·945	24
34·2	..	..	..	..	332·75	..	25
17·8	..	..	..	..	78·5	..	26
12·88	463	..	..	..	392·42	..	27
17·28	..	..	..	..	55	..	28
73·25	..	..	225	..	114	..	29
45·90	905·70	..	..	..	481·78	..	30
15·98	..	..	..	..	93·824	1·75	31
12	..	..	..	..	..	13¼	32
82	..	..	..	..	96	..	33
14·635	0·186	..	..	..	362·951	..	34
23	..	..	..	..	186·25	20	35
29·4	345·8	..	..	..	18·0	1·2	36
12	..	..	..	..	68 5	..	37
..	..	..	..	..	257·0045	..	38
11·62	..	..	..	..	121·4	..	39
10·72	..	..	..	..	97·3	..	40
..	..	..	..	..	687·05	3·99	41
..	..	..	..	..	12·97	..	42
..	..	..	..	..	54·75	..	43
..	..	..	..	..	..	..	44
..	..	..	..	..	..	..	45
..	..	..	..	..			46
							47

APPENDIX

Statistical data regarding number of units generated or purchased, sold, connected

Serial number and name of licensee.	Total connected load at the end of 1946-47			
	Government departments.	Panchayat boards.	Agricultural.	Domestic lighting and power.
	(13)	(14)	(15)	(16)
1 Madras	..	400	..	20,339
2 Kanadukathan	2·55	26·79	20·22	1,497·36
3 Devakottai	1·610	..	17·800	965·090
4 British Cochin	..	..	..	170·00
5 Trichinopoly-Srirangam	202	59	487	3,471
6 Rajahmundry	101	4	350·1	350
7 Calicut	54·43	..	0·75	397·365
8 Karaikudi	3·0	..	6·75	1,052·47
9 Vellore	61·00	35·6	83·99	967·05
10 Guntur	26	0·275	273·187	622·427
11 Kumbakonam	16·5	81	9	1,200
12 Nattarasankottai	6	11	..	297
13 Salem-Erode	49·325	14·125	340·285	1,972·787
14 Mangalore	65·58	..	3·74	979·831
15 Palghat	37	..	..	401·5
16 Tinnevelly-Tuticorin	..	2·475	25·425	1,586·232
17 East Tanjore	22·23	61·00	119·08	1,666·55
18 Nellore	29·6	..	6·0	151·625
19 Tirumalai-Tirupathi	1·090	0·725	193·738	524·266
20 Chittoor	7·50	..	30·75	651·50
21 Negapatam	46·90	1·20	..	1,140·13
22 Okkur	0·52	6·87	37·5	973·38
23 Proddatur	..	..	30·0	60·0
24 South Arcot	37·789	23·440	2,828·360	1,014·742
25 Vizagapatam	758·48	..	..	822·23
26 Adoni	4·0	..	..	112·2
27 Gudiyattam	0·3	4·22	425·275	285·5
28 Gudivada	..	..	8·4	125·061
29 Ellore	0·10	..	3·75	300·00
30 West Ramnad	1·88	..	28·35	65·25
31 Narasaraopet	2·54	..	..	55·615
32 Ongole	..	..	..	98
33 Cuddapah	..	..	52	173·73
34 Ambur-Vaniyambadi	0·820	12·775	242·08	456·42
35 Chingleput	6·1	..	63·375	140·835
36 Tellicherry-Cannanore	10·8	..	..	245·4
37 Chicacole	..	2·65	4	83·3
38 Bobbili	..	3·58	..	95·569
39 Anakapalli	..	..	..	155·827
40 Udipi	..	2	..	143·5
41 East Ramnad	5·54	34·17	31·50	840·59
42 Salur-Parvathipur	..	6·4	..	93·15
43 Neikuppai	..	1·910	21·00	176·619
44 Tiruchendur (*a*)	..	..	..	..
45 Valparai	0·658	5·131	..	13·421
46 West Coast—Supply not yet commenced.				
47 Ponnani—Supply not yet commenced.				

F-3—*cont.*

load, etc., for the year ending 31*st March* 1947—(*Company licensees*)—cont.

in K.W.—*cont.*		Number of high-tension and low-tension consumers on 31st March 1947.		Number of agricultural pump sets and total horse-power. As on 31st March 1947.		Connected during the year.		Population of area of supply.	Serial No.
Miscellaneous.	Total.	High-tension.	Low-tension.	Number.	Horse-power.	Number.	Horse-power.		
(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	
1,000	41,137	30	20,200	..	..	..	..	1,822,000	1
215·02	1,970·81	..	1,458	9	27	2	11·5	33,086	2
4,605	1,209·065	..	1,027	7	23·75	2	3	30,000	3
5·0	265·00	..	323	..	..	..	..	27,000	4
1,801	13,452	6	10,867	197	636·6	50	180·39	1,726,703	5
63	895	1	1,165	1	1	..	..	82,000	6
70·0	1,850·675	..	2,540	1	1	..	..	120,000	7
..	1,254·84	..	1,228	5	9 B.H.P.	..	..	50,000	8
3·60	2,681·71	..	2,658	20	105	11	72	126,889	9
132·9	1,933·440	1	2,134	84	365	13	64	200,000	10
..	1,736·5	..	4,128	2	15	..	..	(about) 120,000	11
12	468	..	725	..	..	..	..	22,000	12
0·320	8,126·462	5	5,033	60	340·285	7	63·0	224,272	13
..	..	..	2,203	..	..	1	5	99,060	14
17·25	911·25	..	1,452	..	..	..	..	60,000	15
278	5,093·923	6	4,894	5	25·425	..	..	250,000	16
1,415·89	7,141·42	4	9,506	47	154	4	19	1,611,162	17
98·51	561·665	..	1,056	2	8	1	3	57,800	18
..	1,054·767	..	744*	34*	*149·75	..	..	20,000	19
..	1,043·15	..	770	10	43·8	6	19·5	(about) 40,000	20
1·90	4,187·64	1	1,531	..	..	..	..	60,000	21
21·35	1,039·62	..	590	10	48	5	25	15,000	22
3·0	135·5	..	364	5	40 H.P.	..	..	26,000	23
470·475	6,055·427	2	3,920	620	2,828·35	149	508·35	150,000	24
48·06	2,005·67	3	1,681	..	..	..	..	150,000	25
63·0	275·50	..	430	..	..	..	..	40,000	26
37·85	1,621·47	1	907	90	425·275 K.W.	57	345	75,000	27
10	215·741	..	347	2	10	..	..	23,900	28
..	503·250	..	1,027	1	5	..	..	75,000	29
..	1,728·86	5	1,218	9	38	6	28	85,000	30
18·65	188·359	..	556	..	..	..	..	18,000	31
7¼	101	..	285	..	..	..	..	(about) 26,000	32
..	405·73	..	628	9	69·5	..	..	3,500	33
8·4	1,098·267	..	1,203	56	324·5	16	85	61,500	34
30	481·56	..	467	16	84·5	5	30·5	60,000	35
14·4	671	1	1,228	..	..	..	..	..	36
11·2	181·65	..	559	1	4·5	..	..	30,300	37
4·1	360·2535	..	210	..	..	..	..	14,469	38
..	288·847	..	347	..	..	..	..	40,000	39
8·1	261·62	..	649	..	..	..	..	27,000	40
4,069·45	5,672·29	4	2,540	8	42	4	12	207,243	41
14·42	126·94	..	366	..	..	..	..	40,100	42
38·983	293·262	1	459	7	28	5	19	12,823	43
..	..	..	..	..	..	..	..	..	44
..	19·210	..	27	..	..	..	..	600	45
									46
									47
	120,705·3435	71	95,659	1,318	6,711·675 H.P. + 425·275 K.W.	344	1,148·24 H.P + 345 K.W		

* As on 31st March 1946 as figures relating to 1946–47 have not been received.

APPENDIX F-4.

Statistical data regarding number of units generated or purchased, sold, connected load, etc., for the year ending 31st March 1947—Local authority licensees.

Serial number and name of licensee.	Number of units generated.	Number of units purchased.	Number of units sold.	Maximum demand.	Total connected load at end of the 1946–47 in K.W.						
					Municipal.	Industrial.					Railways.
						Textiles.	Cement.	Chemicals.	Steel rolling mills.	Small industries.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1 Bellary	649,269	..	526,387	269·2 K.W.	33·16		..		..	183·886	8·5
2 Bezwada	..	2,958,934	2,627,135	795 K.W.	173·436	..	..	..	27·6	418·312	215·5
3 Cocanada	..	898,111	783,354	287 K.W.	123·125	14·92	..	..	..	159·792	11·2
4 Hindupur	82,470	..	76,979	41·04 K.W.	14·52	..	..	..	..	29·95	..
5 Hospet	34,615	..	30,707	46 K.W.	12·6	..	..	..	..	60	2
6 Kurnool	59,464·31	..	49,123	93 K.W.	47·8	..	..	..	..	..	..
7 Masulipatam	..	596,575	517,148·6	207·5 K.W.	75·25	..	..	..	..	261·90	..
8 Tiruvellore	..	325,170	281,551	106·4	..	..	..	2·238	..	56·683	..
9 Ootacamund	..	2,494,205	2,219,399	1,020	86·74	..	..	..	..	299·91	5·60
10 Conjeeveram	..	982,847	862,636	344 K.W.	93·042	..	..	..	..	287·728	..
11 Coonoor	..	650,250	558,781	265 K.W.	..	..	..	..	..	123·836	12·682
12 Coimbatore	..	4,922,241	4,423,869	1,650 K.W.	212·62	16·5	..	..	..	1,302·11	50
13 Pollachi	..	1,428,789	1,262,076	415 K.W.	3·250	..	..	..	..	815·028	11·19
14 Dindigul	..	1,427,890	1,265,471	475 K.W.	85	135	..	..	..	445·0	15
15 Virudunagar	..	1,068,145	957,282	285 K.W.	58·964	..	..	..	..	466·663	..
16 Tiruppur	..	1,149,064	982,646	515 K.W.	53·222	813·486	..	..	..	379·685	3·755
17 Madura	..	8,400,487	7,196,779	2,280 K.W.	603·840	739·550	..	..	..	1,098·217	201
18 Tanjore	..	2,097,510	1,837,129	630 K.V.A.	203·690	..	..	..	..	848·464	30
19 Udamalpet	..	402,700	352,406	147 K.W.	9·720	..	..	..	..	261·473	5·795
20 Palni	..	401,387	371,472	156 K.W.	16·0	..	..	..	..	174·0	5
21 Karur	..	624,667	572,471	215	..	..	..	..	..	270·109	5·688
22 Bodinayakkanur	..	232,173	219,794	107 K.V.A.	30·981	..	..	..	..	96·671	..
23 Periyakulam	..	285,791	258,102	117 K.V.A.	22·18	..	..	..	..	139·460	..
24 Sembiem	..	352,979	295,560·54	128 K.W.	27·148	..	..	..	..	118·614	..
25 Tiruvottiyur	..	405,791	349,727	172 K.W.	..	34·625	..	..	..	285·91	..
26 Alandur	..	174,621	148,804	92 K.V.A.	..	..	..	..	..	96·10	..
27 Tiruppattur	..	301,099	273,771	138 K.W.	10·0	..	..	..	..	143·625	..
28 Tiruvannamalai	..	469,742	439,432	178 K.W.	47·670	..	..	..	..	110·350	4·46
29 Sivakasi	..	327,072	302,134	111 K.W.	21·885	..	..	..	..	154·911	..
30 Villivakkam	..	61,410	54,145·1	44 K.V.A.	..	..	..	..	..	29·90	..
31 Dharapuram	..	300,601	281,304	100 K.V.A.	26·32	..	..	..	..	111·52	..
32 Anantapur	194,325	..	160,455	72 K.W.	8·800	..	..	..	..	52·385	..
33 Kodaikanal	..	194,804	175,456	132 K.W.	12.795	..	..	..	..	14·92	..
34 Wellington Cantonment ..	..	101,361	96,306	50 K.W.	..	..	..	..	..	22·260	..
35 Kollegal	60,263	..	50,639	38 K.W.	..	..	..	..	..	52·0	..
36 Rameswaram Panchayat Board.	..	14,775	14,633·73	20 K.W.	..	..	..	..	..	..	..
37 Rameswaram Devastanam ..	46,722	..	14,775	24·5 K.W.	..	..	..	..	..	..	..
	1,127,128·31										

	Total connected load at the end of 1946–47 in K.W.—*cont.*						Number of H.T. and L.T. consumers on 31st March 1947.		Number of agricultural pump sets and total h.p.				Population of area of supply.
									As on 31st March 1947.		Connected during the year.		
	Government departments. (13)	Panchayat boards. (14)	Agricultural. (15)	Domestic lighting and power. (16)	Miscellaneous. (17)	Total. (18)	H.T. (19)	L.T. (20)	NO. (21)	H.P. (22)	NO. (23)	H.P. (24)	(25)
1 Bellary	63·2	..	..	307·493	5·90	602·139	..	976	..	..	..	..	56,056
2 Bezwada	24·84	..	52·41	756·875	..	1,668·977	1	2,146	13	70	3	15	92,731
3 Cocanada	14·174	..	4·476	444·337	48·458	820·482	..	991	4	6	..	..	75,146
4 Hindupur	18·96	..	..	90·36	..	153·79	..	263	..	..	..	..	18,978
5 Hospet	5·2	..	12·7	92·15	..	184·65	..	349	5	17 B.H.P.	..	..	26,013
6 Kurnool	..	..	..	..	22·5	70·3	..	586	..	..	..	..	60,000*
7 Masulipatam	..	..	..	530·8	37·95	905·9	..	941	..	..	..	..	59,000
8 Tiruvellore	..	10·390	77·286	167·814	..	314·411	..	291	15	103·6	2	15·5	13,300
9 Ootacamund	51·04	..	..	2,481·72	..	2,925·[illegible]1	..	1,493	..	..	..	..	29,989
10 Conjeeveram	..	..	114·015	633·762	..	1,128·547	..	1,539	27	146	12	69	92,000
11 Coonoor	..	..	..	472·97	45·20	654·688	..	902	..	..	..	..	18,781
12 Coimbatore	309·42	..	408·447	3,152·42	190	5,641·517	1	5,306	83	544·6	14	66·5	130,354
13 Pollachi	8·895	..	74·846	315·560	40·660	1,269·429	..	849	17	94·5	5	19·5	26,198
14 Dindigul	15	..	14	633	..	1,342	..	1,243	..	..	..	..	75,000
15 Virudunagar	12·344	..	29·374	694·046	..	1,261·391	..	1,393	7	29·374	3	17·158	34.560
16 Tiruppur	6·275	..	64·155	463·087	11·19	1,794·855	..	1,072	20	82	3	13	33,099
17 Madura	..	..	8·206	3,428·883	337·521	6,237·217	..	5,733	3	11	..	..	2,39,162
18 Tanjore	94·668	..	47·625	324·260	125·136	1,673·843	2	1,896	16	63·5	1	5	68,722
19 Udamalpet	7·928	3.413	115·070	206·138	18·380	627·917	..	504	22	154·25	2	10	17,596
20 Palni	3	..	14	315	..	527	..	541	4	18·75	..	..	24,706
21 Karur	8·545	..	3·75	450·165	5·56	808·755	..	892	1	3·75	..	..	27,575
22 Bodinayakkanur	..	..	31·110	110·015	13·408	282·185	..	387	7	96·671	1	3·750	28,000
23 Periyakulam	..	..	11·810	211·115	7·122	391·687	..	484	3	15·8	..	..	25,882
24 Sembiem	0·875	..	15·293	101·022	..	262·952	..	255	8	20·5	3	6·5	37,579
25 Tiruvottiyur	1·0	10·95	42·5	71·36	1·80	448·145	..	123	16	56·6	1	3	21.000
26 Alandur	1·3	..	..	2·10	94·58	194·08	..	195	..	..	..	..	13,210
27 Tiruppattur	2·70	..	9·75	212·29	11·25	379·615	..	614	3	13	1	3	22,137
28 Tiruvannamalai	1·510	..	46·50	171·969	5·956	388·415	..	449	14	61	..	..	35,575
29 Sivakasi	0·420	..	40·623	245·890	3·690	467·419	..	428	10	40·623	4	15·675	16,627
30 Villivakkam	1·20	6·59	..	54·896	0·04	92·626	..	104	..	..	..	..	8,881
31 Dharapuram	..	..	19·02	181·636	..	338·493	..	491	5	25·5	1	3	20,666
32 Anantapur	5·00	..	8·235	88·677	20·118	183·215	..	369	5	11	1	1	21,482
33 Kodaikanal	12·47	..	..	468·98	3·73	512·895	..	485	..	..	..	..	9,124
34 Wellington Cantonment ..	..	..	..	43·740	..	66·00	..	114	..	..	..	..	8,255
35 Kollegal	3·16	5·95	..	94·985	10·06	166·155	..	343	..	..	..	..	15,000
36 Rameswaram Panchayat Board.	..	3·29	..	16·41	..	19·7	..	113	..	..	..	..	5,774
37 Rameswaram Devastanam ..	..	13·25	..	..	11·25	24·50	..	1	..	..	..	..	6,000 (about)
						34,830·9	19	34,861	308	1,685·018	57	256·583	

* Relates to the period from 1st October 1946 to 31st March 1947.

APPENDIX G-1.

List of H.T. consumers supplied directly by the Electricity department—Pykara System.

INDUSTRIES.

(a) Cement.

1 The Associated Cement Co., Madukkarai.

(b) Textiles.

2 The Coimbatore Spinning and Weaving Mills, Limited.
3 The Vasantha Mills, Ltd.
4 The Cambodia Mills, Ltd.
5 The Rajalakshmi Mills, Ltd.
6 The Somasundaram Mills, Ltd.
7 The Dhanalakshmi Mills, Ltd.
8 The Kaleswarar Mills, Limited.
9 Ranga Vilas Mill, Ltd.
10 The Pankaja Mills, Ltd.
11 The Lakshmi Mills Co., Ltd.,
12 Sri Ramalinga Choodambika Mills.
13 The Coimbatore Cotton Mills, Ltd.
14 Sri Sarada Mills, Ltd.
15 The Lotus Mills, Ltd.
16 The Palni Andavar Mills, Ltd.
17 The Janardhana Mills, Ltd.
18 Sri Palamalai Ranganathar Mills.
19 The Venkatesa Mills, Ltd.
20 The Murugan Mills, Ltd.
21 The Saroja Mills, Ltd.
22 The Pioneer Mills, Ltd.
23 The Radhakrishna Mills, Ltd.
24 The Gnanambika Mills, Ltd.
25 The Vijayalakshmi Mills, Ltd.
26 The Kamala Mills, Ltd.
27 The Thirumurthi Mills, Ltd.
28 The Buckingham and Carnatic Mills, Ltd.
29 Sri Balasubramania Mills, Ltd.
30 The Soundararaja Mills, Ltd.
31 The Kothari Textiles, Ltd.
32 The Asher Textiles, Ltd.
33 The Kasthuri Mills, Ltd.
34 The Kumaran Mills, Ltd.
35 The Jayalakshmi Mills, Ltd.
36 The Vinodha Ginning Factory.
37 The Rathna Gin and Cotton Factory.

(c) Chemicals.

38 The Industrial Chemicals Ltd., Coimbatore.

(d) Mining.

39 The Nilambur Mines, Nilambur.

(e) Others.

40 The General Manufacturing Corporation, Coimbatore.
41 The Brooke Bond (India), Ltd.
42 The Cordite Factory, Aravankadu.

TEA ESTATES.

Nilgiris.

43 Bengorm Estate.
44 The Devarshola Estate.
45 The Glendale Estate.
46 The Parkside Estate.
47 The Nonsuch Estate.
48 The Prospect Estate.
49 The Terrace Factory.

TEA ESTATES—*cont.*

Nilgiris—Cont.

50 The Kilkotagiri Estate.
51 The Thattapallam Estate.
52 The Rousdonmalai Factory.
53 The Kilmul Fort Factory.
54 The Dunsandle Estate.
55 The Thiashola Factory.
56 The Sussex Group Tea Estates.
57 The Suttun Estate.
58 The Terramia Estate.

Anamalais.

59 The Vellamalai Estate.
60 The Pachamalai Estate.
61 The Akkamalai Estate.
62 The Manicka Estate.
63 The Kallayar Estate.
64 The Iyerpadi Estate.
65 The Sheikalmudi Estate.
66 The Uralikkal Estate.
67 The Ropeway Company.
68 The Injiparai Estate.
69 The Stanemore Estate.
70 The Nallakattu Estate.
71 The Sri Kundra Estate.
72 The High Forest Estate.
73 The Valparai Township Committee.
74 The Karamalai Estate.
75 The Kadalaparai Estate.
76 The Mukotumudis Estate.
77 The Sellaliparai Estate.
78 The Mount Stuart Estate.
79 The Malikkiparai Estate (Pannimadai).
80 The Thaimudi Estate.

Licensees.

81 Coimbatore Municipality.
82 Pollachi Municipality.
83 Tiruppur Municipality.
84 Ootacamund Municipality.
85 Udamalpet Municipality.
86 Palni Municipality.
87 Dindigul Municipality.
88 Dharapuram Municipality.
89 Periyakulam Municipality.
90 Bodinayakkanur Municipality.
91 Kodaikanal.
92 Palghat Electric Supply Corporation..
93 West Coast Electric Supply Corporation—Calicut.

OTHERS.

94 Cochin Government—Supply near Chittoor Within the Madras boundary.
95 Agricultural College, Coimbatore.
96 Central Jail, Coimbatore.
97 Forest College, Coimbatore.
98 Sugarcane Breeding Station, Coimbatore.
99 Government Malt Factory, Coimbatore.
100 Sulur Aerodrome.
101 Royal Naval Air Station, Coimbatore.
102 Ice and Cold Storage Installation, Coimbatore—II Point of Supply.
103 Supply to Military Buildings and Workshops—I Point of Supply.

APPENDIX G-2.

List of H.T. consumers supplied directly by the Electricity department—Mettur System.

INDUSTRIES.

(a) Textiles.

1 Mettur Industries, Ltd.

(b) Chemicals.

2 Mettur Chemical and Industrial Corporation, Mettur Dam.

(c) Others.

3 Indian Metal and Metallurgical Corporation, Mettur Dam.
4 The Deccan Sugar Abkari Co., Ltd., Pugalur.
5 The Dhanalakshmi Mills.
6 Erode Water Works.

LICENSEES.

7 Vellore Electric Supply Corporation, Ltd., at Ranipet.
8 Vellore Electric Supply Corporation, at Vellore.
9 North Arcot District Electric Supply Corporation, Ltd., Gudiyattam.
10 North Arcot District Electric Supply Corporation, Ltd., Pernambut.
11 Chittoor Electric Supply Corporation, Ltd., Chittoor.
12 Carnatic Electric Supply Corporation, Ltd., Ambur.
13 Salem-Erode Electricity Distribution Co., Ltd., Salem.
14 Salem-Erode Electricity Distribution Co., Ltd., Erode, I Point.
15 Salem-Erode Electricity Distribution Co., Ltd., Sankari, II Point.
16 Salem-Erode Electricity Distribution Co., Ltd., Palliapalayam.

LICENSEES—*cont.*

17 South Madras Electric Supply Corporation, Ltd., Trichinopoly.
18 South Madras Electric Supply Corporation, Mayanoor.
19 South Madras Electric Supply Corporation, Ltd., Tiruvarur.
20 South Madras Electric Supply Corporation, Ltd., Vallam.
21 Negapatam Electric Supply Co., Ltd.
22 Kumbakonam Electric Co., Ltd.
23 South Arcot Electricity Distribution, Co.
24 Chingleput Electric Supply Corporation, Ltd., Chingleput.
25 Chingleput Electric Supply Corporation, Ltd., Reddipalayam.
26 Tirumalai-Tirupatti Devasthanams.
27 Tanjore Municipality.
28 Karur Municipality.
29 Tirupattur Municipality.
30 Conjeeveram Municipality.
31 Tiruvannamalai Municipality.
32 Trivellore Panchayat Board.

OTHERS.

33 French India Government, Pondicherry.
34 South Indian Railway, Golden Rock.
35 South Indian Railway, Erode.
36 M. & S. M. Railway, Jalarpet.
37 M. & S. M. Railway, Arkonam.
38 Executive Engineer, P.W.D., Mettur Dam.

APPENDIX G-3.

List of H.T. consumers supplied directly by the Electricity department—Papanasam System.

INDUSTRIES.

(a) Textiles.

1 Meenakshi Mills, Ltd., Madura.
2 Pandian Mills, Madura.
3 The Loyal Mills, Koilpatti.
4 The Mahalakshmi Mills, Pasumalai.
5 Kothandaram Mills, Madura.
6 Lakshmi Mills, Koilpatti.
7 The Madura Mills Co., Ltd., Madura (Dunlop Yarn Plant).
8 Rajah Mills, Ltd., Madura.

(b) Oil Mills.

9 A. T. Parangiri Nadar & Co., Virudhunagar.
10 T. M. M. Madalai Nadar & Co., Virudhunagar.
11 T. M. S. Madalai Nadar & Co., Virudhunagar.
12 Southern Oil Mills, Virudhunagar.

LICENSEES.

13 South Madras Electric Supply Corporation, Ltd.
14 Tinnevelly-Tuticorin Electric Supply Corporation, Ltd., Tuticorin.
15 West Ramnad Electric Distribution Co., Ltd., Rajapalayam.
16 Reliance Electric Supply Corporation, Okkur.
17 Nattarasankottai Electric Supply Corporation, Nattarasankottai.
18 Madura Municipality.
19 Virudhunagar Municipality.
20 Sivakasi Municipality.

OTHERS.

21 Government of Travancore.
22 Shencottah Electric Supply Co. (Licensee of Travancore State).
23 Virudhunagar Municipality Waterworks.

APPENDIX G-4.

List of H.T. consumers supplied directly by the Electricity department—Andhra System.

VIZAGAPATAM SYSTEM.

Industries.

1 Scindia Steam Navigation Company.
2 Vizianagram Mining Company, Garbham Mines.
3 Vizianagram Mining Company, Kodur Mines.

Licensees.

4 Vizagapatam Electric Supply Corporation—Town Supply.
5 Vizagapatam Electric Supply Corporation—Aerodrome Supply.
6 Vizagapatam Electric Supply Corporation—Malkapuram Supply.
7 Anakapalli Electric Supply Corporation.
8 Motors and General Stores, Ltd., Bobbili.
9 Salur-Parvathipur Electricity Distribution Co.

Others.

10 Vizianagram Estate.
11 Vizagapatam Port.
12 Royal Navy, Vizagapatam.
13 Biddu Pydanna & Sons (Oil Mills).
14 Narayana Visvanadam and Sons.

BEZWADA AREA.

Industries.

15 Andhra Cement Company, Bezwada.
16 K.C.P., Ltd., Vuyyur.
17 National Chemicals, Ltd.

Licensees.

18 Bezwada Municipality.
19 Masulipatam Municipality.
20 Gudivada Electric Supply Corporation.
21 Ellore Electric Supply Corporation.
22 Guntur Power and Light—Tenali Supply.
23 Guntur Power and Light—Tadepalli Supply.

COCANADA AREA.

24 Cocanada Municipality.

KURNOOL AREA.

Nil.

APPENDIX H-1.

List of villages and townships electrified to end of 1946-47.

PYKARA ELECTRICITY SYSTEM.

COIMBATORE DISTRICT.

I. Avanashi taluk.

1 Angeripalayam.
2 Andipalayam.
3 Annur.
4 Avanashi.
5 Avanashipalayam.
6 Avanashilingampalayam.
7 Chickadasampalayam.
8 Chikkarampalayam.
9 Chockampalayam.
10 Dasampalayam.
11 Kalingarayampalayam.
12 Kannampalayam.
13 Kadathur.
14 Karamadai.
15 Karumbapalayam.
16 Kattampatti.
17 Kariampalayam.
18 Kuppipalayam.
19 Kallar.
20 Maddampalayam.
21 Madathupalayam.
22 Mangalakaraipudur.
23 Masagounderchettipalayam.
24 Mettupalayam.
25 Muthanampalayam.
26 Nambiampalayam.
27 Nellithrai.
28 Odenthorai.
29 Perumanallur.
30 Ponnaigoundenpudur.
31 Pumalur.
32 Rakkiapalayam.
33 Thelungupalayam.
34 Thirumuruganpundi.
35 Thekkampatti.
36 Theampalayam.
37 Virugapalayam.
38 Vannipalayam.

II. Coimbatore taluk.

39 Agraharasamakulam.
40 Athipalayam.
41 Bodipalayam.
42 Chettipalayam.
43 Chitrachavadi.
44 Ganapathi.
45 Govindanaickanpalayam.
46 Idigarai.
47 Kalapatti.
48 Kallunadai.
49 Kandaigoundersalai.
50 Keeranatham.
51 Kondayampalayam.
52 Krishnarayapuram.
53 Kuniamuthur.
54 Kurichi.
55 Kurudampalayam.
56 Machampalayam.
57 Madukkarai.
58 Manikkarampalayam.
59 Narasimhanaickanpalayampudur.
60 Nanjundapuram.
61 Neelikonampalayam.
62 Ondiputhur.
63 Onnipalayam.
64 Palathorai.
65 Papanaickenpalayam.
66 Pannimadai.
67 Perianaickanpalayam.
68 Perur.
69 Perurchettipalayam.
70 Podanur.
71 Pudupalayam.
72 Samakulam.
73 Saravanampatti.
74 Sengalipalayam.
75 Sinnavadampatti.
76 Sircarsamakulam.
77 Souripalayam.
78 Thettipalayam.
79 Thondamuthur.
80 Tudiyalur.
81 Udayampalayam.
82 Upplipalayam.

COIMBATORE DISTRICT—*cont.*

Coimbatore taluk—cont.

83 Vadamuthurai.
84 Velankurichi.
85 Vellalore.
86 Vellaikiner.
87 Vellamadai.
88 Veerapandi.
89 Veerakeralam.
90 Venkitapuram.
91 Viyampalayam.
92 Pudur.
93 Peelamedu.
94 Crudulur.
95 West Chitraichavadi.

III. Dharapuram taluk.

96 Dhalavaipatnam.
97 Periyakumarapalayam.

IV. Erode taluk.

98 Chennimalai.
99 Chengapalli.
100 Irugur.
101 Kunnathur.
102 Perundurai.
103 Reddipalayam.
104 Thalapatti.
105 Uthukkuli.
106 Virumandampalayam.
107 Kavathampalayam.

V. Gobichettipalayam taluk.

108 Gobichettipalayam.
109 Kolappalur.
110 Sirivallur.

VI. Palladam taluk.

111 Anuppapalayam.
112 Appanaickenpatti.
113 Arasur.
114 Arugampalayam.
115 Athappagoundenpudur.
116 Audinarayanapuram.
117 Bommaigoundenpatti.
118 Chandrakavi.
119 Chinnavadugapalayam.
120 Chinnayagoundenvalasu.
121 Irugur.
122 Kallapalayam.
123 Kalickanaickenpalayam.
124 Kaniyur.
125 Kannampalayam.
126 Karadibavi.
127 Karavalimadapur.
128 Kosavampalayam.
129 Marianallur.
130 Mailampatti.
131 Mudalipalayam.
132 Mangalam Vanjipalayam.
133 Neelambur.
134 Navakkadu.
135 Odderpalayam.
136 Palladam.
137 Pappampatti.
138 Patanam.
139 Peedampalli.
140 Paramasivampalayam.
141 Permalur.
142 Rasipalayam.
143 Ravathur.
144 Samalapuram.
145 Sengodagoundenpudur.
146 Somanur.
147 Sulur.
148 Thottipalayam.
149 Uthupalayam.

APPENDIX H-1—*cont.*

List of villages and townships electrified to end of 1946–47—cont.

PYKARA ELECTRICITY SYSTEM—*cont.*

COIMBATORE DISTRICT—*cont.*

VII. Pollachi taluk.

150 Achipatty.
151 Angalakurichi.
152 Ambrampalayam.
153 Chittoor.
154 Erisinampatti.
155 Gomangalampudur.
156 Iyerpadi.
157 Kaliapuram.
158 Kinathukadavu.
159 Koilpalayam.
160 Kottampatti.
161 Kottur.
162 Jekkarapalayam.
163 Lakshmanapuram.
164 Naickanampatti.
165 Nallamparai.
166 Malayandipatnam.
167 Muthur.
168 Othaikalmandapam.
169 Okkilipalayam.
170 Perianegamam.
171 Ponnapuram.
172 Samathurai.
173 Samathor.
174 Sethumadai.
175 Singanallur.
176 Sholavampalayam.
177 Subbiagoundenpudur.
178 Valparai.
179 Vettaikaranpudur.

VIII. Udumalpet taluk.

180 Annaikadavu.
181 Adivelli.
182 Alampalayam.
183 Andiyur.
184 Bodinatham.
185 Bodipatti.
186 Chinnakumarapalayam.
187 Chinnavalavadi.
188 Dhali.
189 Gudimangalam.
190 Guruvappanaickanur.
191 Illuppanagaram.
192 Jellipatti.
193 Kulipalayam.
194 Kaniyur.
195 Karatholuvu.
196 Kadathur.
197 Kolumam.
198 Komaralingam.
199 Manupatti.
200 Murungapatti.
201 Nallampalli.
202 Peddampalli.
203 Periyapathi.
204 Periavalavadi.
205 Pukkulam.
206 Pottayampalayam.
207 Raghalbavi.
208 Senjuvady.
209 Sundakkampalayam.
210 Udukkampalayam.
211 Vanasapatti.
212 Virugalpattipudur.

MADURA DISTRICT.

I. Dindigul taluk.

213 Chinnapatti.
214 Pithalapatti.
215 Sembatti.
216 Vakkanpatti.

MADURA DISTRICT—*cont.*

II. Kodaikanal taluk.

217 Kodaikanal.

III. Nilakkottai taluk.

218 Ammanaickenoor.
219 Athur.
220 Batlagundu.
221 Nilakkottai.
222 Pattiveerampatti.

IV. Palni taluk.

223 Akkamanaickenpudur.
224 Amarapundi.
225 Ayyokudi.
226 Chithrarevu.
227 Eramainaickanpatti.
228 Naikarapatti.
229 Papampatti.
230 Vathagoundenvalasu.

V. Periyakulam taluk.

231 Alagapuri.
232 Alinagaram.
233 Chimamanur.
234 Cumbum.
235 Nagalapuram.
236 Ranganathapuram.
237 Srirangapuram.
238 Theni.
239 Uthamapalayam.
240 Veerapandi.
241 Venkatachalapuram.
242 Veppampatti.

NILGIRIS DISTRICT.

I. Coonoor taluk.

243 Aravankadu.
244 Aravenu.
245 Ariahutty.
246 Bengalmattam.
247 Hoobathalai.
248 Hulical.
249 Jagathala.
250 Kattapettu.
251 Kilkunda.
252 Kilkotagiri.
253 Kotagiri.
254 Konakarai.

II. Gudalur taluk.

255 Devarshola.
256 Gudalur.

III. Ootacamund taluk.

257 Glen Morgan.

MALABAR DISTRICT.

I. Palghat taluk.

258 Ellapulli.
259 Kanjikode.
260 Parai.

Appendix H-1—*cont.*

List of villages and townships electrified to end of 1946–47—cont.

METTUR ELECTRICITY SYSTEM.

SALEM DISTRICT.

I. Omalur taluk.

1 Mettur Dam.
2 Omalur.
3 Pachampatti.
4 Taramangalam.
5 Jalakantapuram.
6 Nangavalli.
7 Virakkal.
8 Kolathur.

II. Krishnagiri taluk.

9 Krishnagiri.
10 Kaveripatnam.

III. Dharmapuri taluk.

11 Dharmapuri.
12 Kariamangalam.
13 Arasampatti.
14 Pennagaram.

IV. Salem taluk.

15 Yercaud.
16 Elampalli.
17 Ayodiapatnam.
18 Kurambapatti.

V. Attur taluk.

19 Attur.
20 Seshanchavadi.
21 Mettupatti.

VI. Trichengode taluk

22 McDonal's Choultry.
23 Komarapalayam.

VII. Rasipuram taluk.

24 Rasipuram.
25 Mallur.
26 Singalandapuram.
27 Thengalpalayam.
28 Valasu.
29 Malayampatti.
30 Namagiripet.
31 Koneripatti.
32 Valasu
33 Pudupatti.
34 Kalkurichi Velallapatti.
35 Korakkai.
36 Kakaveri.
37 Maskalipatti.

VIII. Harur taluk.

38 Uttangarai.
39 Singarappet.

IX. Namakkal taluk.

40 Velur.
41 Nallipalayam.
42 Laddivadi-Pudupatti.
43 Mohanur.
44 Namakkal.
45 Pilikkalpalayam.
46 Erumaipatti.

COIMBATORE DISTRICT.

I. Erode taluk.

47 Kodumudi.
48 Edayankattuvalasu.
49 Veerappanchatram.
50 Vairavanpalayam.

II. Bhavani taluk.

51 Bhavani.
52 Chittode.
53 Ammapet.
54 Singampet.
55 Nerigipet.
56 Andiyur.
57 Kalbai Thalapalayam.
58 Pudupalayam.
59 Kesarimangalam.
60 Olagadam.
61 Urachikottai.
62 Thippichettipalayam.

TRICHINOPOLY DISTRICT.

I. Karur taluk.

63 Uppidamangalam.
64 Punjai Pugalur.
65 Vennambudur.
66 Samudram Extensions.

CHITTOOR DISTRICT.

I. Chittoor taluk.

67 Pakala.
68 Kalroadpallai.

II. Tiruttani taluk

69 Tiruttani.
70 Nagari.
71 Sholinghur.

SOUTH ARCOT DISTRICT.

I. Tirukkoilur taluk.

72 Tirukkoilur.
73 Sirumadurai.
74 Vettavalam.
75 Meyyur.
76 Veerapandi.

II. Vriddhachalam taluk.

77 Vriddhachalam.
78 Mangalampet.
79 Ulundurpet.
80 Semmanangur.

III. Villupuram taluk.

81 Tiruvennainallur.
82 Kandamanadi.

NORTH ARCOT DISTRICT.

I. Arkonam taluk.

83 Arkonam.
84 Puliamangalam.
85 Kadambattur.
86 Arigalvadi.
87 Nemali.
88 Synavaram.
89 Asanallikuppam.
90 Takkolam.
91 Attuppakkam.

II. Vellore taluk.

92 Shembakkam.

III. Polur taluk.

93 Polur.
94 Kunnathur.

IV. Wallajah taluk.

95 Kaveripauk.
96 Kalavai.
97 Olughur.
98 Semaithangi.
99 Kedapperi.
100 Valluvambakkam.
101 Ocheri.
102 Arumbakkam.
103 Allalacheri.

V. Arni taluk.

104 Arni.
105 Kalambur.
106 Satyavijayanagaram.
107 Palanganur.

VI. Cheyyar taluk.

108 Tiruvettipuram.
109 Korakkai.
110 Wandiwash.

VII. Tiruppattur taluk.

111 Jalarpet.
112 Vaniambadi.
113 Christukulashram.
114 Annadanapatty.
115 Extensions to four wells.
116 Pachal Mitta.

VIII. Tiruvannamalai taluk.

117 Adayar Devanandal.
118 Nallavampalayam.
119 Vengikkal.
120 T. Edayar.

CHINGLEPUT DISTRICT.

I. Conjeeveram taluk.

121 Wallajabad.
122 Vaiyanur.

APPENDIX H-1—*cont.*

List of villages and townships electrified to end of 1946-47—cont.

PAPANASAM ELECTRICITY SYSTEM.

MADURA DISTRICT.

I. Madura taluk.

1 Pasumalai.
2 Tiruparankundram.
3 Austinpatti.
4 Panayur.
5 Harveypatti.
6 Avaniapuram.
7 Veeramadayam.
8 Palanganatham.

II. Melur taluk.

9 Melur.

III. Tirumangalam taluk.

10 Tirumangalam.
11 Kalligudi.
12 Melapatti.
13 Maravakulam.
14 Dharmathupatti.
15 Palakkapudupatti.
16 Kappalur.

RAMNAD DISTRICT.

I. Sattur taluk.

17 Sattur.
18 Sivakasi.
19 Thiruthangal.
20 Kattalapatti.
21 Kokkalanjeri.
22 Pavali.
23 Valliyur.
24 Sulakkarai.
25 Kurangundu.
26 Puliankulam.
27 Chinnamooppanpatti.

RAMNAD DISTRICT—*cont.*

II. Aruppukottai taluk.

28 Aruppukottai.
29 Palayampatti.
30 Gopalapuram.

III. Tiruvadanai taluk.

31 Tirumanjolai.

TINNEVELLY DISTRICT.

I. Koilpatti taluk.

32 Koviipatti.
33 Ettayapuram.

II. Tenkasi taluk.

34 Tenkasi.
35 Courtallam.
36 Ilanji.
37 Kadayam.
38 Kilakadayam.
39 Erapannai.
40 Perambattur.
41 Pottalpudur.

III. Ambasamudram taluk.

42 Ambasamudram.
43 Kallidaikurichi.
44 Shermadevi.
45 Karaikurichi.
46 Mukkudal.
47 Ariyanayagipuram.
48 Vikramasingapuram.
49 Papansam.
50 Viravanallur.
51 Kudanthurai.

ANDHRA POWER SYSTEM.

BEZWADA SYSTEM.

WEST GODAVARI DISTRICT.

I. Ellore taluk.

1 Kalaparru.

KISTNA DISTRICT.

I. Nuzvid taluk.

2 Gollapalli.
3 Meerjapuram.
4 Morasapudi.
5 Nuzvid.
6 Ramannagudam.
7 Tukkulur.
8 Vettigudipadu.
9 Polasanapalli.

II. Gannavaram taluk.

10 Ampapuram.
11 China Ogirala.
12 Yenamalakuduru.
13 Gannavaram.
14 Kanakavalli.
15 Kanumur.
16 Pedaogirala.
17 Penamalur.
18 Sevaragudam.
19 Vanukur.
20 Vuyyur.

III. Bandar taluk.

21 Chilakalapudi.
22 Bandar.
23 Pedana.

IV. Bezwada taluk.

24 Ambapuram
25 Bhavanipuram..
26 Enikapadu.
27 Gengur.
28 Garikeparru.
29 Gosala.
30 Gunadala.
31 Idupugallu.
32 Machavaram.
33 Mogalrajapuram.
34 Mutyalampadu.
35 Patamata.
36 Penamakur.
37 Poranki.
38 Prasadampadu.
39 Punadipadu.
40 Ramavarapupadu.
41 Tadigadapa.
42 Vidyadarapuram.

GUNTUR DISTRICT.

I. Guntur taluk.

43 Atmakur.
44 Angalakuduru.
45 Chinnakakani.
46 Kaza.
47 Kakani.
48 Kolanukonda.
49 Kunda Jagarlamudi.
50 Narakoduru.
51 Mangalagiri.

II. Tenali taluk.

52 Sangam Jagarlamudi

III. Bapatla taluk.

53 Chebrolu.
54 Vadlamuru.
55 Vallivam.

VIZAGAPATAM SYSTEM.

I. Anakapalle taluk.

56 Duvvada.

II. Bimlipatam taluk.

57 Bhimlipatam.
58 Chittivalasa.
59 Tagarapuvalasa.

III. Chipurupalle taluk.

60 Garividi.
61 Chipurupalle.

IV. Vizagapatam taluk.

62 Pedavalteru.
63 Simhachelam.

V. Vizianagram taluk.

64 Nellimarla.
65 Penubarti.
66 Vantitadi.
67 Vizianagram.
68 Moida (Vizianampuram).

COCANADA SYSTEM.

EAST GODAVARI DISTRICT.

I. Coconada taluk.

69 Samalkot.

II. Peddapuram taluk.

70 Peddapuram.

III. Pithapuram division.

71 Pithapuram.
72 Gollaprolu.

IV. Ramachandrapuram taluk.

73 Velangi.
74 Ramachandrapuram.
75 Pasalapudi.
76 Mandapeta.

KURNOOL AREA.

77 Kurnool.

Appendix H-2.

List of villages and townships supplied by licensee undertakings.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47.

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
1	Adoni ..	Bellary	....	1	Adoni town.
2	Alandur	Chingleput	Saidapet	2	Alandur.
3	Anakapalle	Vizagapatam	....	3	Anakapalle town.
4	Anantapur	Anantapur	....	4	Anantapur.
5	Bellary	Bellary	....	5	Bellary.
6	Bezwada	Kistna	....	6	Bezwada.
7	British Cochin	....	....	7	British Cochin.
8	Bodinayakanur	Madura	Periyakulam	8	Bodinayakanur.
9	Bobbili	Vizagapatam	Bobbili	9	Bobbili.
10	Coimbatore	Coimbatore	....	10	Coimbatore.
11	Cocanada	East Godavari	....	11	Cocanada.
12	Conjeeveram	Chingleput	....	12	Conjeeveram.
13	Coonoor	Nilgiris	....	13	Coonoor.
14	Calicut	Malabar	Calicut	14	Calicut town.
15	Chittoor	Chittoor	Ernad	15	Feroke town.
				16	Cuttamancheri.
				17	Chittoor town.
				18	Santhapet.
16	Cuddapah	Cuddapah	....	19	Cuddapah town.
				20	Ramanapalle village.
17	Chingleput	Chingleput	Chingleput	21	Chingleput.
				22	Tirumani village.
				23	Thimmavaram.
				24	Attur.
18	Cannanore-Tellicherry	Malabar	Chirakkal	25	Cannanore.
			Kottayam	26	Choova.
				27	Cantonment.
				28	Vallikunnu.
				29	Pallikulam.
				30	Baliapatam.
				31	Pappinisseri.
				32	Tellicherry.
19	Chicacole	Vizagapatam	....	33	Chicacole.
				34	Guzaratipeta.
				35	Narasannapetta.
20	Carnatic	North Arcot	Tirupattur	36	Vaniyambadi.
				37	Pudur.
				38	Devasthanam.
				39	Old Vaniyambadi.
				40	Chettiappanur.
			Vellore	41	Ambur.
				42	Alankuppam.
				43	Solur.
				44	Sanankuppam.
				45	Tharavelli.
21	Dindigul	Madura	Dindigul	46	Dindigul.
22	Devakottah	Ramnad	....	47	Devakottai.
				48	Shanmuganathapuram.
23	Dharapuram	Coimbatore		49	Thanichapoorani.
			Dharapuram	50	Dharapuram.
24	East Tanjore	Tanjore	Arantangi	51	Arantangi.
			Mannargudi	52	Mannargudi town (2 wards).
				53	Kuthanallur town.
				54	Puvanur.
				55	Ullikottai.
				56	Mullavasal.
				57	Nidamangalam.
				58	Perambur.
				59	Athikadai.
				60	Kamalapuram.
				61	Kottaiyur.
				62	Avikottai.
				63	Pamini.
				64	Serankulam.
				65	Karnawar.
				66	Alacheri.
				67	Budamangalam.
				68	Lakshmangudi.
				69	Koradacheri.
				70	Velukudi.
				71	Mulangudi.
			Mayavaram	72	Mayavaram town (9 wards).
				73	Kuttalam town.
				74	Tranquebar town.
				75	Tirumanjeri.
				76	Kilayur.
				77	Anjaravathalai.
				78	Tholuthalangudi.
				79	Nallathakudi.

APPENDIX H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
				80	Ariyalur.
	East Tanjore—*cont.*	Tanjore—*cont.*	Mayavaram—*cont.*	81	Akkur.
				82	Anathandavapuram.
				83	Chitrakadu.
				84	Eravancheri.
				85	Kadalangudi.
				86	Komal.
				87	Konerirajapuram.
				88	Manganallur.
				89	Nidur.
				90	Perumalkoil (Therabandur).
				91	Melayur.
				92	Sembanarkoil.
				93	Muvalur.
				94	Mappadugai.
				95	Theruvizhandur.
				96	Vandirajapuram.
				97	Aryapuram.
				98	Kothangudi.
				99	Ambanathapuram.
				100	Solachakkaranallur.
				101	Tirukkadayur.
				102	Vadagarai (Arangaduki).
				103	Porayar.
				104	Erukkathancheri.
				105	Elenthangudi.
				106	Kumaramangalam.
				107	Kollumangudi.
			Nannilam	108	Achuthamangalam.
				109	Ammayyappan.
				110	Anaikuppam.
				111	Enangudi.
				112	Adaliyur.
				113	Kamalapuram.
				114	Kangalancheri.
				115	Kodavasal.
				116	Kulikkarai.
				117	Perunthuraikudi.
				118	Marudvancheri.
				119	Mudikondan.
				120	Mulangudi.
				121	Nanniiam.
				122	Peralam.
				123	Nallamangudi.
				124	Puttagaram.
				125	Sennanallur.
				126	Mappilaikuppam.
				127	Tirukondeswaram.
				128	Sengalipuram.
				129	Manavalanpettai.
				130	Srivanchiyam.
				131	Tittacheri.
				132	Tirukkanapuram.
				133	Tirukkannamangai.
				134	Tiruppugalur.
				135	Virkkudi (Vettar).
				136	Vishnupuram.
				137	Vadamattam.
				138	Pairthamanickam.
				139	Arasavanangudi.
				140	Semmangudi.
				141	Tirukkalambur (Sellur).
				142	Tiruvizhimazhalai.
				143	Kothangudi.
				144	Koothanur.
				145	Poonthottam.
				146	Koilthirunalam.
				147	Uthanrangudi.
				148	Marungur.
				149	Thediyur.
				150	Thirumarugai.
				151	Pragraman.
				152	Vadugakudi.
				153	Kadagambadi.
				154	Manavallur.
				155	Keeranur.
			Negapatam	156	Tiruvarur town (4 wards).
				157	Alangudi.
				158	Vizayapuram.
				159	Kodikalpalayam.
				160	Alivalam.
				161	Pinnivasal.

APPENDIX H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	East Tanjore—*cont.*	Tanjore—*cont.*	Negapatam—*cont.*	162	Toppalampuliyur.
				163	Pulivalam.
				164	Thirukkuwalai.
				165	Ettukudi.
				166	Gudur.
				167	Olani.
				168	Mavoor.
				169	Kolapadu.
				170	Manakudi.
				171	Alathambadi.
				172	Apparakudi.
				173	Tennavarayanallur.
				174	Vallvalam.
			Pattukkottai	175	Pattukottai town.
				176	Adirampatnam town.
				177	Anaikadu.
				178	Madukkur.
				179	Nattuchalai.
				180	Movilur.
			Shiyali	181	Shiyali town.
				182	Vaithiswarankoil.
				183	Thadalankoil.
				184	Anaikaranchatram.
				185	Iveli.
			Tanjore	186	Vallam.
				187	Ellupatti.
			Tiruturaipundi ..	188	Tiruturaipundi town (14 wards).
				189	Muthupet town (14 wards).
				190	Udayamarthandapuram.
				191	Alangadu.
				192	Idaiyur.
				193	Manali.
				194	Mangudi.
				195	Pandi.
				196	Sengandi.
				197	Thalanayar.
				198	Palayangudi.
				199	Tillaivilagam.
				200	Kodiyalathur.
				201	Nedumbalam.
				202	Siddamalli.
				203	Jambavanodai Vadagadu.
25	East Ramnad ..	Ramnad	Mudukulattur ..	204	Velur.
				205	Abiramam town.
				206	Kamudhi.
		..	Paramakudi	207	Emaneswaram.
				208	Itayangudi.
				209	Paramakudi.
				210	Ayyakkudi.
				211	Athikarai.
				212	Pudur.
				213	Nainarkoil.
			Ramnad	214	Sathikarakudi.
				215	Kilakarai town.
				216	Ramnad town.
				217	Sakkarakottai.
			Sivaganga ..	218	Tiruppulani.
			Tiruppattur	219	Manamadura.
				220	Kallal.
				221	Sembanur.
				222	Singampunari.
26	Ellore	West Godavari ..		223	Ellore.
27	Guntur	Guntur	Guntur	224	Guntur town.
				225	Mangalagiri.
			Tenali	226	Tenali town.
				227	Angalakuduru.
				228	Sangamjagaralamudi.
				229	Vadalamudi.
				230	Edlapalli.
				231	Valiverum.
			Bapatla ..	232	Chebrole.
28	Gudiyattam ..	.. North Arcot	Gudiyattam	233	Oomerabad.
				234	Nariyampet.
			Pernambut	235	Pernambut.*
				236	Anaganallur.
				237	Natham.
				238	Bhimapuram.
				239	Talayatham.
				240	Cheruvangi.
				241	Gudiyattam.
				242	Damalcheruvu.

APPENDIX H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

Complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	Gudiyattam—*cont.*	North Arcot—*cont.*	Pernambut—*cont.*	243	Vadakathipatti.
				244	Melmuttukur.
				245	Singalapadi.
29	Gudivada	Kistna	....	246	Gudivada.
30	Hindupur	Anantapur ..	....	247	Hindupur.
31	Hospet	Bellary	....	248	Hospet.
32	Kanadukattan ..	Ramnad	Tirupathur	249	Kanadukattan.
				250	Pallathur.
				251	Kothamangalam.
				252	Lakshmipuram.
				253	Manachi.
				254	Kottaiyur.
				255	Valangudi.
				256	Alagapuri.
				257	Kondanoor.
				258	Puduvayal.
				259	Poovandipatti.
				260	Chokanendal.
				261	Athangudi (Muthupatnam).
				262	Palavangudi.
				263	O'Siruvayal.
				264	Kannakkudi.
				265	Nemem.
				266	Sirukoodalpatti.
				267	Viramathi.
				268	Kilasevalpatti.
				269	Elayathangudi.
				270	Avinipatti.
				271	Keeranipatti.
				272	Pilliarpathy village and temple.
				273	Kothari.
				274	Ayyanarkoil.
33	Kumbakonam ..	Tanjore	Kumbakonam ..	275	Kumbakonam.
				276	Darasuram.
				277	Sakkottai.
				278	Sundaraperumalkoi
				279	Papanasam.
				280	Rajagiri.
				281	Pandaravadai.
				282	Ayyampettai.
				283	Tiruvadi.
				284	Royampet.
				285	Ganapathy Agraharam.
				286	Veeramangudi.
				287	Someswarapuram.
				288	Devangudi.
				289	Thilatoor.
				290	Tirukarugavur.
				291	Mariammankoil.
				292	Poondy.
				293	Tiruppuvanam.
				294	Ammapet.
				295	Valangiman.
				296	Tippirajapuram.
				297	Nachiarkoil.
				298	Tiruvadamarudur.
				299	Tepparamanallur.
				300	Veppattoor.
				301	Aduthurai.
				302	Marudannallur.
				303	Irumbuthalai.
				304	Saiaimangalam.
				305	Kalanjeri.
34	Kurnool	Kurnool	Kurnool	306	Kurnool.
35	Karaikudi	Ramnad	Tiruppattur	307	Karaikudi.
				308	Kovilur.
				309	Managiri.
				310	Nachiapuram.
				311	Ariyakkudi.
				312	Zamindar Colony.
				313	Amaravathiputhur, (Devakkottah Road).
36	Karur	Trichinopoly	Karur	314	Karur.
37	Kodaikanal	Madura	....	315	Kodaikkanal.
38	Kollegal	Coimbatore	....	316	Kollegal town.
				317	Mudigunda village.
39	Madras Electric Supply Corporation.	Madras	....	318	Madras City.
				319	Saidapet.
				320	St. Thomas' Mount.
				321	Chrompet.
				322	Meenambakkam.

Appendix H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	Madras Electric Supply Corporation —*cont.*	Madras—*cont.*		323	Pallavaram.
				324	Tambaram.
				325	Sembiam.
				326	Alandur.
				327	Villivakkam.
				328	Thiruvothiyur.
40	Madura	Madura	Madura	329	Madura.
41	Mangalore	South Kanara	....	330	Mangalore town.
42	Masulipatam	Kistna	Bandar	331	Masulipatam
43	Nellore	Nellore	....	332	Nellore.
				333	Kovur (Workshops at Bitragunta, M. & S.M. Ry.)
44	Negapatam	Tanjore	Negapatam	334	Negapatam town.
				335	Velipalayam.
				336	Nagore.
				337	Andanapet.
				338	Manjakollai.
				339	Puttur.
				340	Sikkil.
				341	Provacheri.
				342	Kivalur.
				343	Papakoil.
				344	Velenganni.
				345	Karuvelangadai.
				346	Adipallam extension.
				347	Kurichi.
				348	Puliyur.
				349	Aliyur.
45	Nattarasankottai	Ramnad	Sivaganga	350	Nattarasankottai.
				351	Sivaganga.
46	Narasaraopet	Guntur	....	352	Narasaraopet.
47	Neikuppai	Ramnad	Tiruppattur	353	Neikuppai.
				354	Pulankurichi.
				355	A. Tekkur.
				356	Kondyarayanpatti.
				357	Mahipalanpatti.
				358	Eraniyur.
				359	Sevvur.
48	Ootacamund	Nilgiris	....	360	Ootacamund.
				361	Coonoor.
				362	Wellington.
				363	Ketti village.
49	Okkur	Ramnad	....	364	Cholapuram.
				365	Okkur.
				366	Keelapungudi.
				367	Kilamangalam.
				368	Madagupatti.
				369	Alavakottai.
				370	Chockanathapuram.
				371	Paganeri.
				372	Pattamangalam.
				373	Kandramanickam.
				374	Tiruppattur.
50	Ongole	Guntur	....	375	Ongole.
51	Pollachi	Coimbatore	....	376	Pollachi (Vadugupalayam village).
52	Palni	Madura	....	377	Palni.
53	Periyakulam	Madura	Periyakulam	378	Periyakulam.
54	Palghat	Malabar	....	379	Palghat.
55	Proddatur	Cuddapah	....	380	Prodattur.
56	Rajahmundry	East Godavari	....	381	Rajahmundry.
				382	Dowleswaram.
57	Rameswaram	Ramnad	....	383	Rameswaram.
58	Salem-Erode	Salem	....	384	Salem (including Siramangalam).
				385	Erode.
				386	Tiruchengode.
				387	Idappady.
				388	Sankaridrug (including Kuppanur).
59	South Arcot	South Arcot	Villupuram	389	Pailipalayam.
				390	Villupuram.
				391	Valavanoor.
				392	Panayapuram.
				393	Radhapuram.
				394	Madurappakkam.
				395	Panambattur.
				396	Kollanur.
				397	Narimedu.
				398	Siruvandadu.
				399	Vaniyanpalayam.
				400	Rambakkam.

APPENDIX H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	South Arcot—*cont.*	South Arcot—*cont*	Viliupuram—*cont.*	401	Mokshakulam
				402	Palapet.
			Tindivanam	403	Tindivanam.
				404	Kaveripakkam.
				405	Mylam.
				406	Batriapuliyur.
				407	Vikravandi.
			Cuddalore	408	Cuddalore N.T. and O.T.
				409	Panruti.
				410	Nellikuppam.
				411	Kondareddipalayam.
				412	Poongunam.
				413	Pudupet.
				414	Gavarapet.
				415	Kuchipalayam.
				416	Kozhipalayam.
				417	Pangandai.
				418	Melkumaramangalam.
				419	Soravanur.
				420	Tirukandeswaram.
				421	Nathapet.
				422	Kondur.
				423	Malmiarpet.
				424	District Jail.
				425	Karamanikuppam.
				426	Melpattambakkam.
			Chidambaram ..	427	Chidambaram.
				428	Vallampadugai.
				429	Bhuvanagiri.
60	Sembiam	Madras	.. ..	430	Sembiam.
				431	Sirvallur.
				432	Paravallur.
				433	Ayanavaram (Govt. and Inam).
				434	Chinnasembarambakkam.
61	Salur-Parvatipur ..	Vizagapatam ..	.. ..	435	Salur town.
				436	Parvatipur town.
62	Sivakasi	Ramnad	Sattur	437	Sivakasi.
63	Srivilliputtur ..	Ramnad	Srivilliputtur	438	Rajapalayam.
				439	Srivilliputtur.
64	Tinnevelly	Tinnevelly	Tinnevelly	440	Tirunelveli.
				441	Palamcottah.
				442	Melapalayam.
				443	Tachanallur.
			Srivaikuntam ..	444	Tuticorin.
				445	Vallanad.
				446	Mangalagiri.
65	Trichinopoly-Srirangam.	Trichinopoly ..	Kulittalai	447	Kulittalai town.
				448	Manapparai.
				449	Krishnarajapuram.
				450	Sithalavai.
				451	Mahadanapuram.
				452	Marudur.
				453	Mayanur.
				454	Nangavaram.
				455	Rajendram.
				456	Vagainallur.
				457	Manathattai.
				458	Mettupadugai.
				459	Lalapettai (Kallapallai).
				460	Thimmachipuram.
				461	Hiranyamangalam.
			Lalgudi	462	Lalgudi.
				463	Manachanallur.
				464	Ayyampalayam.
				465	Angarai.
				466	Bikshandarkoil.
				467	Irungalur.
				468	Kallakudi.
				469	Dalmiapuram.
				470	Manakkal
				471	Kanyamanickkam.
				472	Pudur Uthamanur.
				473	Pullambadi.
				474	Punampalayam.
				475	Puvalur town.
				476	Sengandi.
				477	Nanjai Sengandi.
				478	Sirudayur.
				479	Tiruvellarai.
				480	Valladi.
				481	Samayapuram.

Appendix H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

A complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	Trichinopoly-Srirangam—*cont.*	Trichinopoly—*cont.*	Lalgudi—*cont.*	482	Nochium.
				483	Pudukudi.
				484	Pachur.
				485	Salakkadu.
				486	Keelapalayam.
				487	Kuthur.
				488	Kattur.
				489	Pinnavasal.
				490	Peruvalanallur.
				491	Vellanur.
				492	Natarajapuram.
				493	Kovandanakurishi.
			Musiri	494	Musiri town.
				495	Thottiam town.
				496	Natham.
				497	Metturpadugai.
				498	Pudupatti.
				499	Pulivalam.
				500	Silaipillayaputhur.
				501	Murukkur
				502	Kattuputhur.
				503	Mambarai.
				504	Sankapalayam.
				505	Tiruvenghi hills.
				506	Thoraiyur town.
				507	Perumalpalayam.
			Trichinopoly	508	Trichinopoly town (8 wards).
				509	Srirangam town (3 wards).
				510	Golden Rock (Ponmalaipatti).
				511	Abishekapuram.
				512	Allur.
				513	Andanallur.
				514	Ammangudi.
				515	Illuppur.
				516	Kanbarasampettai.
				517	Kalkandarkottai.
				518	Kottampattur.
				519	Melur.
				520	Mutharasanallur.
				521	Ariyamangalam.
				522	Pandamangalam.
				523	Pettavaithalai.
				524	Sathanur.
				525	Sirugamani.
				526	Perugamani.
				527	Veraganeri.
				528	Tiruverambur.
				529	Uyyakondanthirumalai.
				530	Tiruppalathurai.
				531	Kolathur.
				532	Mookanarmalaipatti.
				533	Sengulam.
				534	Palur.
				535	Kavalkarapalayam.
				536	Analai
				537	Uthamarkoil.
				538	Manjathadal.
				539	Navadpatti.
				540	Arasangudi.
			Udayarpalayam ..	541	Ariyalur town (14 wards).
				542	Kilapaluvur.
			Tanjore	543	Tirukkattupalli.
				544	Ombathuvely.
			Pudukkottai (State) ..	545	Palmaneri.
				546	Viralimalai.
				547	Annavasal.
				548	Tiruvappur.
				549	Usilampatti.
				550	Mandianallur.
66	Tirumalai-Tirupathi	Chittoor	Chandragiri ..	551	Tirupathi town.
				552	Chandragiri.
				553	Renigunta.
				554	Perumalapalle.
				555	Peroor.
				556	Pudipatla.
				557	Managapuram.
				558	Pudipet.
				559	Thondavada.
				560	Thirumalai.

APPENDIX H-2—*cont.*

List of villages and townships supplied by licensee undertakings—cont.

/complete list, district or talukwar, at the end of 1946–47 including therein the names of villages and townships to which supply was extended during 1946–47—*cont.*

Serial number.	Name of licensee.	District.	Taluk.	Serial number.	Villages and townships.
	Tirumalai-Tirupati.—*cont.*	Chittoor—*cont.*	Chandragiri—*cont.*	561	Gollapalle.
				562	Muthalareddipalle.
				563	Alipiri village.
				564	Tiruchanur.
				565	Kammapalle.
				566	Narasingapuram.
67	Tiruvellore	Chingleput	Trivellore	567	Ayyeliagaram.
				568	Trivellore town.
				569	Perumbakkam.
				570	Kakalur.
				571	Periyakuppam.
68	Tiruvottiyur	Chingleput	..	572	Thiruvottiyur.
				573	Kalatipet.
				574	Sattangadu.
69	Tirupattur	North Arcot	Tiruppattur	575	Tiruppattur.
70	Tiruvannamalai	North Arcot	Tiruvannamalai	576	Tiruvannamalai.
71	Tanjore	Tanjore	Tanjore	577	Tanjore.
72	Tiruppur	Coimbatore	..	578	Tiruppur.
73	Udumalpet	Coimbatore	Udamalpet	579	Udumalpet.
74	Udipi	South Kanara	..	580	Udipi.
				581	Karkal.
				582	Manipal.
75	Vellore	North Arcot	Vellore	583	Vellore town.
			Gudiyattam	584	Katpadi.
			Walajah	585	Walajah.
				586	Ranipet.
				587	Arcot.
				588	Visharam.
76	Vizagapatam	Vizagapatam	Vizagapatam	589	Vizagapatam.
77	Virudhunagar	Ramnad		590	Virudhunagar.
78	Villivakkam	Chingleput		591	Villivakkam.
79	Valparai	Coimbatore	Pollachi	592	Valparai.
80	Wellington	Nilgiris		593	Wellington.

APPENDIX I.

PYKARA SYSTEM.

I. INSTALLED CAPACITIES OF TRANSFORMERS.

Power house.

	Numbers.	Voltage ratio.	K.V.A.	Aggregate capacity.
Singara	3	11/66 110	7,810	23,430
	2	11/110 K.V.	12,500	25,000
	2	11/11–22	2,000	4,000

II. E.H.T. POWER TRANSFORMER STATIONS (66 K.V. AND 110 K.V.).

1 Kottabettu	2	110 K.V./11 K.V.	1,000	2,000
2 Coimbatore	3	110 K.V./66 K.V.	6,000	18,000
	7	110–66/22–11	5,000	35,000
3 Tiruppur	3	66–33/22–11	1,750	5,250
4 Udumalpet	3	Do.	1,750	5,250
5 Sembatti	3	66/22–11	1,750	5,250
			Total ..	70,750

III. H.T. POWER TRANSFORMER STATIONS (33 K.V. AND 22 K.V.).

1 Madukarai	1	22/11	500	750
	1	Do.	250	..
2 Pollachi	2	Do.	500	1,000
3 Karamadai	1	22 11 KV	500	500
			Total ..	2,250

IV. DISTRIBUTION TRANSFORMERS.

426 22,465

METTUR SYSTEM.

I. Installed Capacities of Transformers.

Power house.

Numbers.	Voltage ratio.	K.V.A.	Aggregate capacity.
3	11/66–110	12,500	37,500
3	11/11–22 K.V. ..	2,000	6,000
2	22–11/3–3	500	1,000

II. E.H.T. Power Transformer Stations (66 K.V. and 110 K.V.).

	Numbers	Voltage ratio	K.V.A.	Aggregate capacity
1 Erode	3	66–33/22–11 ..	1,000	3,000
2 Karur	2	Do. ..	500	1,000
3 Trichinopoly	3	66/33–11	2,500	7,500
	2	66/22–11	2,000	4,000
4 Tanjore	4	66/33–11	750	3,000
5 Tiruvarur	2	Do.	2,500	5,000
6 Negapatam	2	66/11	2,500	5,000
7 Singarapet	2	66/33–11	500	1,000
8 Tiruppattur	2	66–33/22–11 ..	250	500
	1	Do. ..	500	500
9 Ambur	2	66/33–11	500	1,000
10 Vadakitipatti	3	Do.	500	1,500
11 Vellore	2	Do.	1,250	2,500
	2	Do.	500	1,000
12 Tiruvannamalai	2	Do.	500	1,000
	1	Do.	250	250
13 Vettavalam	2	Do.	250	500
	1	Do.	100	100
14 Villupuram	4	66–33/22–11 ..	1,750	7,000
			Total ..	45,350

III. H.T. Power Transformer Stations (33 K.V. and 22 K.V.).

Power house.

	Numbers	Voltage ratio	K.V.A.	Aggregate capacity
1 Papanasam	3	33/11	500	1,500
2 Kannamangalam	1	Do.	250	250
	1	Do.	100	100
3 Chittoor	2	Do.	250	500
	1	Do.	100	100
4 Pakala	2	Do.	250	500
5 Ranipet	2	Do.	250	500
6 Kaveripakam	2	Do.	250	500
	1	Do.	100	100
7 Conjeeveram	4	33/11–66	250	1,000
8 Arkonam	2	33/11	500	1,000
9 Polur	2	Do.	250	500
10 Arni	2	Do.	250	500
			Total ..	7,050

IV. Distribution Transformers.

259 12,888

PAPANASAM SYSTEM.

I. Installed Capacities of Transformers.

Power house.

Numbers.	Voltage ratio.	K.V.A.	Aggregate capacity.
3	11/66 KV	7,250	21,750
2	11/11–22	2,000	4,000

II. E.H.T. Power Transformer Stations (66 KV and 110 KV.).

	Numbers	Voltage ratio	K.V.A.	Aggregate capacity
1 Koilpatti	3	66/33–11	1,000	3,000
2 Sattur	2	66/11	250	500
3 Virudhunagar	2	66/33–11	1,000	2,000
	1	Do.	1,000	1,000
4 Madura	3	66/22–11	3,000	9,000
	1	Do.	3,000	3,000
5 Tuticorin	3	Do.	1,250	3,750
			Total ..	22,250

	Numbers.	Voltage ratio.	K.V.A.	Aggregate capacity.

III. H.T. Power Transformer Stations (33 K.V. and 22 K.V.).

	Numbers.	Voltage ratio.	K.V.A.	Aggregate capacity.
Sivaganga	2	22/11-33	250	500
Gurumurthinaickenpatti	2	33/11	250	500
Rajapalayam	3	66/33-22-11	500	1,500
			Total ..	2,500

IV. Distribution Transformers.

83 4,143

ANDHRA SYSTEM.

I. Installed Capacities of Transformers.

Power house.

	Number.	Voltage ratio.	K.V.A.	Aggregate capacity.
1 Bezwada	1	33/11-33	1,500	1,500
	4	Do.	750	3,000
2 Vizagapatam	2	33/11	1,500	3,000
	3	33/11-33	750	1,710
3 Cocanada	2	33/11	250	500

II. E.H.T. Power Transformer Stations (66 K.V. and 110 K.V.)—*Nil.*

III. H.T. Power Transformer Stations (33 K.V. and 22 K.V.).

Bezwada.

1 Tenali	2	33/11	500	1,250
	1	Do.	250	
2 Gudivada	2	Do.	100	200
	1	Do.	250	250
3 Ellore	2	Do.	100	200
4 Nuzvid (Jn.)	2	33 66	250	600
5 Masulipatam	1	33/11	100	..

Vizagapatam.

1 Vizian gram	2	33/11	250	500
2 Penu'arti	2	Do.	250	500
3 Chittivalasa	2	Do.	100	200

Cocanada—**Nil.**

Kurnool—Nil.

Total .. 3,700

IV. Distribution Transformers.

Bezwada	37	1,465
Vizagapatam	25	1,180
Cocanada	11	415
Kurnool	4	230
Total ..	77	3,290

Government of Madras

PUBLIC WORKS DEPARTMENT

(Electricity)

G.O. No. 770, 4th March 1948

Electricity Department—Administration Report—1946–47—Recorded.

READ—the following paper:—

From the Chief Engineer (Electricity), dated 6th August 1947, No. 23-P/47-23.

Order—No. 770, P.W. (Electricity), dated 4th March 1948.

Recorded.

2. The report contains a record of satisfactory progress of electrical development in the Presidency. Additional load development was confined generally to agricultural pump sets and small industries. The aggregate demand under the Government Systems during the year was 71,683 K.W. as against 60,870 K.W. in 1945–46 and the total number of units generated 317·65 millions as against 327·35 millions in 1945–46. The net revenue realized from the Hydro-Electric Systems was Rs. 56·73 lakhs and the return on the capital outlay was 7·3 per cent. The year 1946–47 was the eighth year of operation of the Vizagapatam and Bezwada Thermal Systems and the seventh year of operation of the Cocanada Thermal System. The Kurnool Thermal Electrical Undertaking owned by the Kurnool Municipality was taken over by the Government Electricity Department at the request of the municipality from 1st October 1946. The number of units generated at Vizagapatam, Bezwada, Cocanada and Kurnool Systems was 7:26, 11·23, 1·25 and 0;05 millions respectively and the working of the four systems has resulted in a deficit of 0;36 lakh.

3. The year under review marks the commencement of a large number of development schemes after a period of stagnation caused by the war. The following major electricity schemes were sanctioned by the Government:—

(i) Machkund Hydro-Electric Scheme to be developed jointly with the Orissa Government. The Madras share of the expenditure is estimated at Rs. 420·11 lakhs initially rising to Rs. 587·6 lakhs in the tenth year of operation.

(ii) Pykara III stage and Moyar II stage extensions at an estimated initial cost of Rs. 255·29 lakhs rising to Rs. 413·79 lakhs in the tenth year.

(iii) Installation of 2–2,500 K.W. transportable sets at Basin Bridge, Madras, at an estimated cost of Rs. 29 lakhs.

(iv) Madura Thermal Scheme at an estimated cost of Rs. 88 lakhs.

(v) Ceded Districts Electrification Scheme at an estimated cost of Rs. 50 lakhs in five years.

(vi) Erode-Trichinopoly-Dalmiapuram 66 K.V. extensions estimated to cost Rs. 39·8 lakhs in eight years.

(vii) Erode-Salem 66/110 K.V. line extensions estimated to cost Rs. 24·86 lakhs initially rising to Rs 29·5 lakhs in eight years.

(viii) Madura-Tirumangalam-Rajapalayam-Tenkasi 66 K.V. extensions, estimated to cost Rs. 26·4 lakhs.

(ix) Conjeeveram-Chingleput-Arkonam extensions, estimated to cost Rs. 16·7 lakhs initially rising to Rs. 19·10 lakhs in eight years.

(x) Kurnool Distribution Scheme estimated to cost Rs. 11·1 lakhs.

(xi) Hindupur Distribution Scheme at an estimated cost of Rs. 4·92 lakhs rising to Rs. 9·75 lakhs in ten years.

(xii) Kollegal Distribution Scheme estimated to cost Rs. 1·705 lakhs initially rising to Rs. 3·5 lakhs in five years.

The Madras Electric Supply Undertaking owned by the Madras Electric Supply Corporation was acquired by the Government Electricity Department on 29th August 1947 on the expiry of the licences granted to the company.

4. The War Costs Surcharge Orders were continued under the provisions of the Central Government Emergency Powers (Continuance) Ordinance 1946, up to 24th March 1947 and thereafter under the Madras Essential Articles Control and Requisitioning (Temporary Powers) Act, 1946. Under these orders the Electricity Department was authorized to continue to levy a surcharge on all its consumers including licensees at 10 per cent in hydro-electric areas and 20 per cent in thermal areas. The licensees obtaining bulk supply from the Electicity Department were also authorized to continue to levy on all their Hydro-Thermal consumers the same surcharge as levied by the department on its Hydro-Thermal consumers. The general War Costs Surcharge Order for the licensee's undertaking was also continued and several licensees were authorized to levy surcharge at the rate fixed by the Government.

5. The restrictions on the working hours of oil engine generating stations continued to be in force during the year. The licensees were, however, permitted to give temporary supplies for essential loads not exceeding 2 K.W. and for periods of less than ten days subject to ratification by the Chief Electrical Inspector to Government. Restoration of street lights to pre-war level in the areas of licensees taking supply from the Hydro-Electric and Vizagapatam Thermal Systems was permitted. In the Bezwada area, this relaxation was not found feasible until the commissioning of the third unit. In the areas of licensees generating their own power by diesel sets, restoration of street lighting to pre-war level was not found feasible partly due to unsatisfactory oil supply position and partly due to the poor condition of engines. However, the oil position eased to some extent by about the middle of the year under review and the respective District Magistrates were authorized to relax partially the restrictions on the existing street lighting wherever feasible in consultation with the Chief Electrical Inspector to Government and the licensees concerned.

6. His Excellency the Governor of Madras places on record his appreciation of the continued good work done by the Electricity Department during the year.

(By order of His Excellency the Governor)

T. A. VARGHESE,
Secretary to Government.

To the Chief Engineer for Electricity.
" Chief Electrical Inspector to Government.
" Public Department.

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